food of the individual or the family. The age or condition of development at the time of the vitamin G deficiency doubtless also influences the incidence of particular symptoms.

For these and other reasons there has been such divergence of experience in different laboratories as to cause skepticism in the minds of some workers; but when these causes of variation are taken duly into consideration there now seems no doubt that the condition of vitamin G deficiency is an experimentally reproducible reality, whether or not it should be called "pellagra-like."

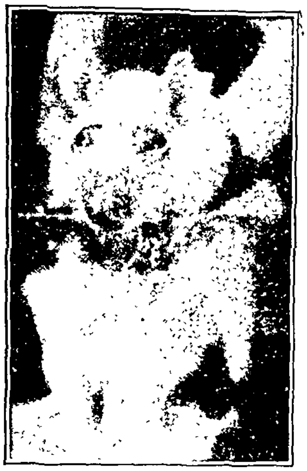

Fig. 1.—The sore mouth, in the so-called pellagra-like condition resulting from lack of vitamin G, is apt to be accompanied in the rat by a soreness and swelling of the nose as shown here, these symptoms often preceding any appearance of extensive dermatitis.

Meanwhile, evidence of the importance of vitamin G in normal nutrition is rapidly accumulating. The Journal has editorially remarked on the increasing recognition and appreciation of the difference between "passable" and "buoyant" health. It is doubtless largely as contributing to buoyant or positive health that the "protective foods" act to preserve the characteristics of youth as described by McCollum, and probably also to prevent and to alleviate much of the so-called degenerative disease as described by Langstroth[3] at the Portland session of the Association. At any rate, it seems reasonable to expect that most if not all therapeutic measures can be aided by the simultaneous improvement in general nutritional condition which recent research on foods has made possible.

It seems to be true of vitamin G, as also of vitamins A and C, that the optimal amount is much higher than the minimal ("actual") requirement; in other words, that the body is able to make good use of a much more liberal intake than can be proved to be absolutely necessary. In the recent experiments of Ellis[4] in my laboratory it has been found that, with food consumption practically the same per unit of body weight at a given age, growth and development continued to show a favorable response to increased liberality of vitamin G intake well above what suffices to prevent any actual sign of deficiency. Vitamin G also appears to contribute to the betterment of longevity induced by Sherman and Campbell[5] through improvement of an already adequate diet. Thus, although the existence of vitamin G has been but recently recognized, there is already evidence that it is a nutritional factor of very far-reaching significance.

The vitamin G which is thus designated at present as *a* nutritional factor may include more than one chemically individual substance. Several workers have found reason to think that the substance essential to growth and that which protects from dermatitis are different, or that more than one growth essential may here be involved, or that both these possibilities may be true. To me, as to many others, it now appears that the present vitamin G is probably a multiple rather than a simple factor; but, if this proves true, it will detract nothing from the importance of this factor to nutrition and health.

INTERRELATIONSHIPS OF NUTRITIONAL FACTORS

Let us now pass to a consideration of some interrelations of nutritional factors and the significance of some of these interrelations in the prevention or cure of disease and the promotion of positive health.

Probably each of the vitamins A, C and D bears an important relation to the metabolism of calcium and phosphorus in the development of bones and teeth. Especially as regards the relationship between vitamin D and calcium there is now a wealth of evidence, much of which is very recent.

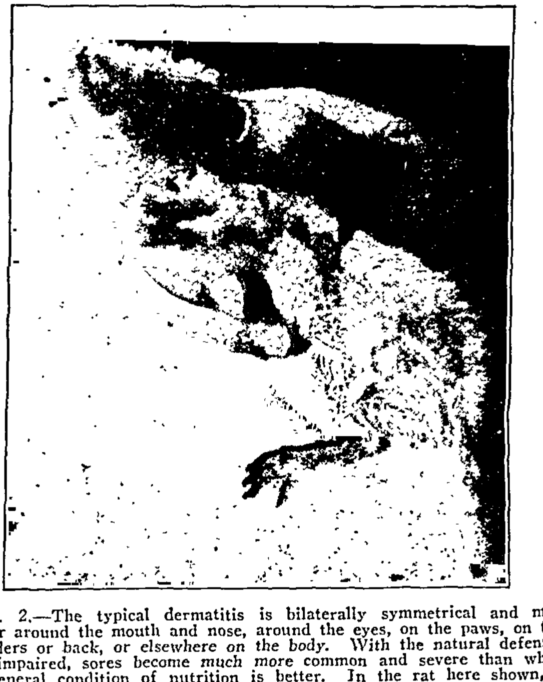

Fig. 2.—The typical dermatitis is bilaterally symmetrical and may appear around the mouth and nose, around the eyes, on the paws, on the shoulders or back, or elsewhere on the body. With the natural defenses thus impaired, sores become much more common and severe than when the general condition of nutrition is better. In the rat here shown, a large sore developed on the ventral surface.

Vitamin D undoubtedly plays a significant part in promoting the orderly development of the bones and teeth; but the evidence is conflicting as to how far it is a calcium conserving and how far only a calcium and phosphorus mobilizing factor. In the enthusiasm of the past few years, there has probably been a tendency to expect too much of vitamin D. Quite recently, however, two of the most active and thoroughgoing groups of workers in this field, the Wisconsin group[6] on the one hand and Shohl and his co-workers[7] on the other, have pointed out with emphasis and cogency that neither irradiation nor the ingestion of vitamin D is a panacea for the problems of the calcium requirement and that, while the vitamin influences the intermediary metabolism of calcium, the supplying of the body's quantitative needs must depend on the calcium content of the intake. Both the published and the unpublished observations of my own laboratory are *also* physician's examination of the child is essentially a physical rather than a chemical examination; chemical analysis of the body or bones, sufficiently complete and controlled to be conclusive, is feasible (with perhaps a few rare exceptions) only in work with experimental animals. But our children should get the benefit of our animal experimentation.

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[3] Langstroth, Lovell: Relation of American Dietary to Degenerative Diseases, J. A. M. A. **93**: 1607 (Nov. 23) 1929.

[4] Ellis, L. N.: Columbia University Dissertation, not yet published.

[5] Sherman, H. C., and Campbell, H. L.: Proc. Nat. Acad. Sc. **14**: 852 (Nov.) 1928; J. Nutrition **2**: 415 (March) 1930.

[6] Among other papers, Steenbock, Harry; Hart, E. B.; Riising, B. M.; Kletzein, S. W. F., and Scott, H. T.: J. Biol. Chem. **87**: 127 (May) 1930. Hart, E. B.; Steenbock, Harry; Tent, E. C., and Humphrey, G. C.: Ibid. **84**: 359, 367 (Oct.) 1929. Hart, E. B.; Steenbock, Harry; Kline, O. L., and Humphrey, G. C.: Ibid. **85**: 145 (March) 1930. Steenbock, Harry; Black, A., and Thomas, B. H.: Ibid. **85**: 585 (Jan.) 1930.

[7] Among other papers, Brown, H. B., and Shohl, A. J.: J. Biol. Chem. **86**: 245 (March) 1930.

Very recently, then, the results of such experimentation have been brought to a point at which we may definitely conclude that, while in many respects the growing body does very closely "obey" Liebig's law, yet it may grow up calcium-poor because of calcium-poor food, or iron-poor because of iron-poor food. The iron-poor condition will usually be detected through some observable tendency toward anemia, while the calcium-poor condition is more likely to go undetected and may (probably often does) persist throughout growth and into adult life. Naturally, a liberal intake of phosphorus also is needed, for the calcium is laid down in the body chiefly as calcium phosphate.

If it be asked just what penalty ensues from such a calcium-poor condition of the body, the answer is not altogether clear cut: the condition described probably plays a part in a number of weaknesses and increased susceptibilities to infection without being exclusively responsible for any one of them. The interrelationships of nutritional factors will have the effect, on the one hand, of a divided responsibility for many suboptimal conditions, so that these while really nutritional cannot readily be proved to be so. On the other hand, however, it makes possible the attainment of highly significant improvements in the general condition of nutrition through the joint effects of the interrelated factors.

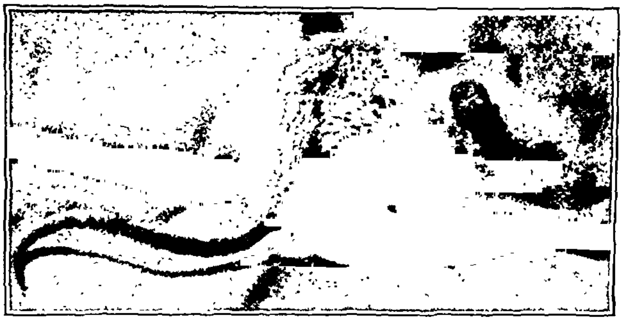

Fig. 4.—As contrasted with the alertness, vigor and good muscular tone of the animal shown cured in figure 3, there is here shown an animal of about the same age, whose food while not entirely lacking in vitamin G has been poor in this factor. The thinness of hair is indicative of an *incipient dermatitis, and the general appearance and attitude of weakness* with combined torpidity and apprehensiveness are a frequent result of this type of ill balanced diet and are more or less suggestive of the depression which some physicians consider a characteristic feature of the pellagra syndrome. (Reproduced by courtesy of the Journal of Nutrition.)

IMPROVEMENT IN HEALTH AND LONGEVITY THROUGH BETTER DIETARY

True, it has usually seemed simpler and more orderly to study the factors concerned in nutrition one by one; but it would be a mistake to suppose that this is the only scientific method, for science has not yet reached a point at which it may safely be assumed that the sum of the known parts is equal to the whole; and, even if one were sure that all the parts were known, there is an important principle, scientific as well as philosophical, that a whole may be a sort of synthesis which is something more than a mere summation of its parts. For example, early in their epoch-making feeding experiments with isolated food substances, Osborne and Mendel[12] emphasized strongly and clearly the nutritional superiority of their "natural protein-free milk" over any "artificial protein-free milk" that they could prepare even in the light of their unprecedentedly thorough investigation of the substances involved. In the two decades of active research since their publication of this fundamental finding, its general purport has been repeatedly confirmed, and even the discovery of half a dozen vitamins concerned in mammalian nutrition still does not enable one to account completely for the nutritional value of milk or of protein-free milk.

Are there other vitamins essential to human nutrition still to be discovered, at least in the sense of differentiating into two or more substances what is now called vitamin G; or is milk one of those "wholes" which, while chemically a mixture, is in the philosophical sense a sort of synthesis whose significance is greater than that of a mere summation of its parts? Very probably, both; that is, very probably there are here involved both substances and interrelationships whose nutritional significances are even greater than is yet fully appreciated.

The view that the evolution of mammals has produced, for them, an especially significant nutritional "whole" in milk does not imply the desirability of any long period of exclusive milk diet: in fact, our present knowledge rather warns us against such exclusiveness. It does imply that by a larger use of milk in ordinary mixed diet we may be able to bring about a better-than-average nutritional condition. And this may be true—though in view of their place in nature, probably to a less extent—of the other "protective foods" as well.

Hence from the point of view of today, we need not stop with the finding of what provides adequately for each known nutritional factor but may proceed to explore the zone which lies between the merely adequate and the optimal in nutrition.

To the extent that food can make the difference between a merely average and a better-than-average nutritional condition, it may also function as a more potent resource in the physician's armamentarium than has yet been generally appreciated.

In general, however, we should not look for quick results from improvements in human nutrition. One of the most impressive features in recent discoveries regarding the relations of food to health and vitality is that the benefit of better feeding usually becomes fully apparent only when it is continued throughout a large part of the life-cycle, and often the benefit is greater to the second generation than to the first. While this may seem slow from the standpoint of therapeutics, it would also seem to indicate that the effects of food on vitality may be fundamental and far-reaching.

Through simply a wiser emphasis in the daily choice and use of ordinary staple foods there may result improvements in the vitality of the individual or the family, all well within the bounds of normal nutrition but of very real significance for the maintenance of health or for recovery from disease.

Here again we turn to the evidence derived from experimentation on laboratory animals, partly because this permits of controlled conditions and partly because we can experiment thus with the influence of food on the health of an entire lifetime and even of successive generations.

We have families of rats which are thriving in the twenty-seventh generation on uniform diet—certainly a out of my sphere. It might be of interest to note what the laboratory experimentation on animals that can be kept under dietary control throughout the whole life cycle, and when desirable through successive generations, indicates on that point. It indicates clearly that with respect to vitamins A, C and G the optimal intake is far above the amount which can be definitely proved to be necessary, as judged by the development of the symptoms. That is, to enable the individual and its offspring to do the best requires far more of vitamin A, C and G than the amount that is required to prevent the appearance of any of the typical symptoms of the deficiency disease. The recent work on the relation of vitamin C to teeth shows that, for the complete protection of the teeth, twice as much vitamin C is required as for the prevention of the longer known symptoms of scurvy. The work of Mellanby and Green shows that to get the full anti-infective effect, whatever that may be, of vitamin A, requires about four times as much vitamin A as is required to prevent the characteristic symptoms of vitamin A deficiency. In our own laboratory, experiments just completed and not yet published indicate that at least twice as much vitamin G gives improved condition in nutrition as the amount required to prevent the signs of vitamin G deficiency; so that, with respect to all three of those vitamins, the laboratory evidence is in the direction of an affirmative answer to the clinical question which Dr. Wilder raises. Whether it should be called latent vitamin deficiency or not, there are undoubtedly a great many persons not showing the characteristic signs of vitamin deficiency but who would do better if they got more of one or another of those three vitamins.

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[12] Osborne, T. B., and Mendel, L. B.: Publication 156, Carnegie Institution of Washington, 1911; J. Biol. Chem. **15**: 311, 1913; **31**: 149, 1917.

MANAGEMENT OF SKULL FRACTURES AND INTRACRANIAL INJURIES *

HARRY E. MOCK, M.D.
CHICAGO

The subject of skull fractures and intracranial injuries is filled with so many ramifications that one cannot cover all its intricacies in a single paper. Many of its problems are still subject to controversy. One can only hope to clarify a few of these controversies and leave with the reader a few high lights in the management of skull fractures which experience has shown to be useful.

I have reviewed practically every article written on skull fractures since 1900. These articles review 20,000 cases of skull fractures, but for statistical study I could use only 8,649 of the reported cases.

This study has developed the lack of uniformity in classifying skull fractures, in classifying the associated cerebral injuries, in the mortality statistics and in working up clinical and roentgenographic observations that justify the diagnosis of skull fracture. Too often the statistics are based on the individual's interpretation of his cases, which may differ widely from another individual's classification. This leads to such widely divergent opinions as expressed in the following figures: Cushing, in 1909 reported that 80 per cent of all patients with basal skull fractures died. Frazier, in 1909, reported a 59 per cent death rate in all basal skull fractures. Rawlings, an English author, in 1904 gave 32 per cent as the approximate death rate in basal skull fractures.

The review of the literature does show, however, that in each decade the authors refer to their lines of treatment as conservative; that in the first decade of this century there were fewer operations than in the second decade (50 per cent fewer); that in the second decade, when decompression operations per se were the vogue, the gross death rate was the highest; that in the third decade, or from 1920 to 1928, decompression operations per se were becoming less frequent and the gross death rate was 17 per cent less; that far fewer operations were being performed from 1926 to 1928 with a gross death rate of 25.8 per cent in 2,085 cases, as against a death rate of 49.7 per cent in 2,850 cases from 1910 to 1920. In the second decade, out of 1,850 patients in which treatment was discussed 24.2 per cent were operated on, while in the three-year period 1926, 1927 and 1928, 10.8 per cent of the 1,995 patients were operated on.

No one can review this literature without being convinced that:

1. Far too many skull fractures have been operated on in the past.
2. There is gradually developing in this country a far more common sense, rational management of skull fractures than we have ever had before.

Yet in studying the current literature and in talking with many surgeons in various parts of the country it is evident that many still believe in and are doing decompressions to relieve intracranial pressure. It is apparent that far from a unanimity of opinion exists concerning the management of skull fractures.

In the December, 1930, issue of the *International Journal of Medicine and Surgery* are four articles on skull fractures. Adson [1] says:

> Conservative treatment is advisable. Obviously, lacerated scalps and depressed fractures need surgical attention, and the surgeon must elect the time most suitable for such procedure. In some cases, the injury is so extensive and the shock so profound that death is inevitable, and any attempt at surgical repair is unwarranted. In other cases it is apparent that hemorrhage is in progress and that immediate exploration is necessary, even though there is no evidence of recovery from shock. In most injuries of the head without depressed fracture, the nonoperative, dehydration procedure appears to offer the best results.

Loyal Davis [2] says:

> We feel that subtemporal decompressions are never indicated in patients in coma from a skull injury. Bilateral subtemporal decompressions are mentioned only to be condemned as being doubly worse. To obtain a decompression effect it is of course obviously necessary to open the dura mater. Regardless of how gently or carefully any cranial operation is done, in which the brain is exposed, edema results. This is added insult to injury. To insert a drain into the cranial cavity only opens an avenue of infection to the subarachnoid space which may prove fatal. In complete accord with Rand and others we have found one sign, however, which is pathognomonic and upon which considerable reliance may be placed. I refer to a dilatation of the pupil upon the side of the hemorrhage. This sign, in the absence of any other corroborative evidence, is a sufficient indication for surgical interference and points rather directly to the side of the lesion.

A. A. Jackson [3] of Florence, Ala., says:

> There are several cardinal signs of increased intracranial pressure which call for a decompression operation, and which might be enumerated as follows: Slowing of the pulse rate, retinal edema and change in the visual field, increase of pressure of cerebrospinal fluid; as shown by the mercurial manometer at lumbar puncture, and increased arterial tension. For the average practitioner a change in the pulse rate is perhaps the most dependable sign. Of course, if there is a depressed fracture of the vault, this should be elevated and removed or an accurate coaptation of fragments established. If the signs

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* Read before the Tacoma Surgical Club at a meeting for the surgeons of Oregon, Washington and British Columbia, April 18, 1931.

* Owing to lack of space, this article is abbreviated in The Journal by omission of the illustrations. The complete article appears in the author's reprints.

[1] Adson, A. W.: Internat. J. Med. & Surg. 43: 617 (Dec.) 1930.

[2] Davis, Loyal: Internat. J. Med. & Surg. 43: 621 (Dec.) 1930.

[3] Jackson, A. A.: Internat. J. Med. & Surg. 43: 629 (Dec.) 1930.

of a roentgenogram; but it further implies that if the roentgenogram is negative the patient must be placed at complete rest in bed under close observation.

But there is a time and place for all things and this is especially true in relation to head injuries and the x-rays. Given a serious head injury with the patient in deep shock, in coma or more often delirious and thrashing about, one does not need a roentgenogram to diagnose a definite cerebral injury. In fact, the roentgenogram will not show the damage to the brain. It may show a depressed skull fracture but most often only a linear fracture. A roentgenogram should not be taken in such a case until the shock has been overcome and the condition of the patient is such that the added insult of moving to an x-ray laboratory and of the turning over and over, necessary for taking of the several views of the skull, will not endanger his recovery. If need for a roentgenogram seems very definite, one should resort to a portable x-ray machine; but even here it should be delayed until the shock is over and the condition of the patient will tolerate it. When the roentgenogram is thus delayed or one has been taken with a portable x-ray machine, one should eventually have a roentgenogram made in the x-ray department, as no case of skull fracture should go unproved and the portable x-ray machines are often inadequate. A scientific, not too commercial, x-ray department will check all roentgenograms taken with portable apparatus for the sake of accuracy. In a monograph, Stewart and Tuchett have recently described in detail the technic and demonstrated that basilar fractures can be shown on a roentgenogram in the majority of cases. Tuchett comments in the surgical preface: "The numerous results positive for fracture in very mild cases warrant the rule that every skull receiving violence ever so slight, imparted directly or indirectly, with or without accompanying symptoms of intracranial pressure, should be considered possibly fractured until conclusively proven otherwise." He recommends in every case two lateral, one frontal and one occipital exposure, and if one has perfected the technic, one of the base also. Others have recommended stereo views especially, claiming that they bring out fractures that do not show on the flat plate.

Table 3.—*Group 2: Routine Treatment*

50 PER CENT

Signs and Symptoms

1. Disturbed consciousness.
2. Slowed pulse—not below 55 and not persistent.
3. Slowed respirations—not below 17 and not persistent.
4. Lowered blood pressure—not persistent after shock is relieved.
5. Blood or cerebrospinal fluid from ears or nose.
6. Roentgen evidence.
7. Pupillary changes; changed reflexes; Babinski sign.
8. Observe closely for focal signs.

Routine Treatment

1. Rest in bed from three to eight weeks.
2. Morphine—when?
3. Combat shock.
4. Combat increased intracranial pressure:
    (*a*) Magnesium sulphate.
    (*b*) Hypertonic solution intravenously; dextrose solution.
5. Prevent dehydration.
6. Prevent starvation.
7. Local treatment:
    (*a*) Scalp wounds; compound fractures.
    (*b*) Discharging ears or through sinuses.
    (*c*) Of swollen eyes.
    (*d*) Associated injuries.

A careful neurologic examination is always indicated in these head injuries, and the earlier it can be made the better index one has of the actual brain injury. However, the same restrictions must be made here as in the roentgen examination. No undue disturbance of the patient for this or any other examination must be tolerated until the severe initial shock has been properly treated and overcome.

A fixed, dilated pupil usually indicates a brain lesion and hemorrhage on the same side of the cortex. I have witnessed this phenomena many times even in patients whose symptoms clear up without lumbar puncture. It should never, as some authors have stated, be the sole indication for operative intervention. The equally contracted, fixed pupils are suggestive always of basilar injury and hemorrhage. This condition, while extremely serious, does not necessarily mean a fatal prognosis. Eyeground examinations should always be made in cases of skull injury as soon as the general condition of the patient warrants. A slight cloudiness of the edges of the disk, a beginning papilledema, must be watched for and when found is not necessarily an indication for operation but certainly warrants recourse to lumbar puncture. As a rule a definite choked disk comes with the symptoms of complete medullary compression when operative treatment is usually futile.

Changes in the reflexes and Babinski or Oppenheim signs are suggestive of pyramidal injuries. Often these are only temporary. When persistent, they may be the only focal signs presented in a subdural hemorrhage. When a patient does not yield or yields only temporarily to routine treatment and lumbar punctures, and has these signs persistently present, one must then consider the need of operative intervention. Correct interpretation of these focal signs should lead to the proper site of opening the skull. Fortunately, but few cases fall in this rather unsatisfactory classification for operative intervention.

Definite paresis or paralysis of one or more extremities, convulsions or twitchings form the usual focal signs that point to an extradural or subdural hemorrhage and are definite indications for operation. Depending on the side of these focal signs, the site for operation is usually indicated; viz, the opposite side of the skull. However, if one fails to find the lesion on opening the indicated side of the skull, one should not hesitate to open the opposite side, as contrecoup injury to the brain not infrequently happens. In one case I opened the skull over the right rolandic area as the site of fracture over the right parietal region and the paralysis of the left arm and leg definitely indicated. No hemorrhage was found. The patient died in eight hours and at autopsy a large extradural clot was discovered over the left hemisphere of the cortex. This condition is rarely reported, but every surgeon should be on his guard for it (fig. 2).

In group 2, 50 per cent of the cases recovered under routine treatment only. Reference to table 3 gives an outline of procedures included under routine treatment, but certain of these need further explanation.

The great majority of injuries of the head give a very pronounced picture of shock. This is characterized by cold, clammy skin, weak, thready pulse, shallow and often increased respirations, low blood pressure and subnormal temperature. Disturbed consciousness of varying degrees accompanies this abnormal state. This picture of shock is quite similar to the very dangerous condition of medullary compression. It must at times be differentiated in order that this condition can be combated early. The rise in temperature with a patient apparently in shock is the best guide available in a case of medullary compression developing almost immediately on admission. Such a case usually has a fatal termination but should have the benefit of lumbar drainage at least, even while the changed in the entrance of the ear with the same metriculous, aseptic care as is used for open compound fractures elsewhere. The swollen eye, of course, needs attention. It should be irrigated twice a day and a few drops of mild silver protein applied until such time as the patient can open the swollen lids and the normal physiologic cleansing of the eye resumes function.

Table 4 shows that 33 per cent of the cases did not respond solely to routine treatment. The state of disturbed consciousness persisted; the pulse and respiration persisted or would improve temporarily and then return; the blood pressure would begin to rise or would rise and then fall—all signs of persistent or a returning increased intracranial pressure. These patients were then subjected to the special treatment of lumbar puncture. Routine treatment was carried on just the same in this group, but added to it was this special procedure. The least sign of a beginning papilledema was considered sufficient indication and its persistence additional indication for puncture and repeating the puncture.

Table 4.—*Group 3: Special Treatment—Lumbar Puncture*

33 PER CENT

Signs and Symptoms

1. Persistently disturbed consciousness.
2. Persistently slow pulse and respiration.
3. Marked changes in blood pressure.
4. Signs of persistent or of returning increased intracranial pressure.
5. Appearance of papilledema.
6. Signs of meningitis or meningeal irritation.
7. Occasionally for diagnosis.

Routine Treatment Plus Lumbar Puncture

1. With persistent or increasing delirium or coma; repeat.
2. With return of slow pulse and respiration; repeat.
3. All but two cases had blood spinal fluids on first puncture.
4. Number of punctures:
    1 patient, 15 spinal punctures.
    1 patient, 5 spinal punctures.
    4 patients, 3 spinal punctures.
    18 patients, 2 spinal punctures.
    8 patients, 1 spinal puncture.
    1 patient, 1 diagnosis spinal puncture.

Meningeal irritation or a condition of meningismus is prone to develop when the spinal fluid shows the continued presence of blood over a period of forty-eight hours or longer. It is often hard to differentiate from a true meningitis. Both conditions warrant lumbar puncture, and if true meningitis develops, repeated punctures, even cisternal or ventricular punctures, offer the best chance in an extremely dangerous condition.

Rarely is a lumbar puncture necessary for diagnosis in skull fractures. It is at times indicated in those patients found unconscious on the streets, with no history of injury and very little evidence of trauma, when a differential diagnosis as to the cause of the coma is needed.

Thirteen per cent of the cases fell in group 4; namely, those which had some definite indication for operation. I know now that at least two of the patients who were given subtemporal decompressions, one within an hour and the other within twenty-four hours following admission, did not have definite indications for operation. Routine treatment and possible lumbar puncture offered far more chance for saving the lives of these two patients than did my operative intervention. They would not be operated on in the light of present experience.

In the one case of death following operation for depressed skull fracture the patient would undoubtedly have died anyway. But my operation, performed ten hours after the injury was received, did not add to his chance of recovery. One often says: "This patient is going to die if we don't operate, and the chances are that he will die if we do operate, but we will give him that one chance in a thousand." Within the first twelve hours following a skull fracture, in 99 per cent of cases such a premise is false. It is extremely rare that an operation during this period on a patient who is going to die, unless one operates, will save that patient. The possible exception is in a case definitely diagnosed as a middle meningeal hemorrhage, in which the main trunk of the artery is torn as it emerges on the inside of the skull and results in a rapidly growing extradural clot. Many surgeons have operated immediately on depressed skull fractures or have done very early decompressions and have found one of the branches of the midmeningeal artery bleeding or have discovered a slowly growing subdural clot and have had their patients recover; but these patients were not in a hopeless condition at the time of operation. The chances are that in every such case it will add greatly to the safety of the operative intervention if one will wait until the patient is over his shock and in better condition to stand operation.

In one of my cases of markedly depressed skull fracture the patient was practically moribund the first forty-eight hours. Shock treatment was followed by dehydration and lumbar punctures with bloody fluid obtained but with no improvement in his condition. Dr. George Hall, the neurologist, mentioned decompression but agreed with me that the patient could not possibly stand the operation. A hopeless prognosis was given to the family. The second twenty-four hours there was slight but very gradual improvement. The patient was still in deep coma, but improvement was noted in the pulse, respiration and blood pressure, which had been as low as 60 systolic. Toward the end of this period the patient's condition was sufficiently improved to warrant a roentgen examination with a portable apparatus. This showed a marked depressed skull fracture in the right parieto-occipital region. There had been no focal signs except sluggish reflexes and a persistent Babinski sign. Improvement continued under dehydration treatment, alternating with periods of pushing fluids and of feeding the patient by the stomach tube, and four lumbar punctures. On the sixth day I operated on the patient and removed the large depressed fragment, which was severely comminuted and could not be replaced. The patient made a complete recovery. He was kept in bed eight weeks and in the hospital ten weeks. On discharge he was kept from undue activity until sixteen weeks had elapsed. He returned to his job as railroad mechanic at the end of six months. Earlier roentgenograms would perhaps have tempted me to operate earlier. Early operation would have killed this

Table 5.—*Group 4: Special Treatment—Operations*

13 PER CENT

Signs and Symptoms

1. Definitely depressed skull fracture.
2. Signs of middle meningeal hemorrhage.
3. Subdural hemorrhages giving focal conditions:
    (*a*) Paresis or paralysis in one or more extremities.
    (*b*) Persistent or increasing choked disk.
4. With persistent signs and symptoms in spite of lumbar punctures.

Operations

1. For depressed skull fracture, 6.
    (*a*) 1 death.
2. For middle meningeal hemorrhage, 3.
    (*a*) 1 death.
3. For persistent symptoms, 1.
    (*a*) no death.
4. For subdural hemorrhage, 1.
    (*a*) no death.
5. Early decompression, 2.
    (*a*) 2 deaths.

those patients who die in the ambulance on the way to the hospital. I have included in my series all patients alive on entering the hospital. In my second hundred series I have had five deaths in the first twenty patients admitted, all occurring within the first three hours in the hospital. Thus it is quite possible that when I report on 200 cases the death rate will be higher than given here. The 100 cases herein reported are the last 100 cases treated, going backward from 1930 until I had collected 100 cases directly under my own supervision and treatment. This took me back to about 1926 and will afford a standard for judging the treatment of my further cases.

Table 7 will give the reader a better understanding of the size of this skull fracture problem. These cases are scattered throughout the land and in the majority of instances must be treated by general men rather than by specialists.

CONCLUSIONS

1. The annually increasing morbidity and mortality rate due to trauma, with skull fracture causing a high percentage of the deaths, makes this one of the great economic and medical problems of our time.

2. It is impossible to standardize treatment, as each individual case presents its own peculiar requirements. But it is possible to give a rational routine treatment which can be applied to 50 per cent of all skull fracture cases and then to classify the remaining cases into the following three groups:

(*a*) Those in which rest treatment alone is sufficient (4 per cent).

(*b*) Those who must have, in addition to routine care, the special treatment of lumbar drainage (33 per cent).

(*c*) Those cases having definite, recognized indications for cerebrocranial operations (13 per cent).

3. In this article the effort has been made to clear up certain controversies by detailing those practices recognized by the majority of authors on this subject and proved of the greatest value in my hands, in the management of skull fractures and cerebrocranial injuries. The article is written for those men away from medical centers who are just as frequently confronted with these cases and who are sometimes led astray in their treatment by certain teachers decrying lumbar drainage and by other teachers extremely adept in operative technic, advocating operative intervention in skull fractures, especially decompressions.

4. If the average man will delay all roentgen examinations, undue physical examinations and operative procedures (with a rare exception) until the initial shock is over and then will classify his cases according to their signs and symptoms, he will develop for himself a common sense, rational line of treatment free from many of the controversial pitfalls commonly found in the management of skull fractures.

5. Skull fractures should be treated at or near where they occur. Specialists, if desired, should be taken to the patient with the skull fracture rather than the patient to the specialist. Since, in the majority of communities, specialists in this condition do not exist and since the automobile has become a potential carrier of skull fractures to every hamlet, village and city in the land, it behooves all with experience in this matter to simplify and clarify the management of skull fractures to the end that the majority of physicians can properly cope with this grave emergency when and wherever confronted with it.

122 South Michigan Avenue.

STUDIES OF DISEASES OF THE LYMPHOID AND MYELOID TISSUES

VI. THE TREATMENT OF MALIGNANT NEUTROPENIA WITH PENTOSE NUCLEOTIDES [*]

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In 1924 one of us[1] definitely demonstrated for the first time the existence in normal human blood of pentose nucleotides. In 1931 we[2] reported the case of a man with acute myeloblastic leukemia who, following the intravenous injection of pentose nucleotides, made a remarkable temporary recovery. Since that time we have been much interested in therapeutic possibilities of these complex and highly reactive substances, which normally circulate in considerable amount in the blood and are known to exist principally in the nuclei of living cells. Occasional reports[3] have been made indicating that nucleic acid or its decomposition products have a stimulating effect on the white blood cell formation. In the latest of these reports, Reznikoff[4] described four cases of agranulocytic angina treated with transfusions of blood and intravenous injections of the purine bases, adenine and guanine. Three of his patients recovered. It should be pointed out that Reznikoff used purine bases and not nucleotides as he himself noted in the next issue of the same journal.[5] Nucleic acid is a complex molecule made up of two pyrimidine and two purine nucleotides linked together. These nucleotides in turn are made up of a purine or a pyrimidine base together with pentose and phosphoric acid. These compounds may be further broken down to nucleosides with the loss of phosphoric acid and still further to the purine or pyrimidine bases with the loss of pentose. It is these purine bases that Reznikoff used—the unbroken nucleotide is used by us.

The nucleotides are readily soluble in water, essentially nonirritating and apparently stable in solution. We are not prepared to say yet whether the solutions retain their activity and their nonirritating qualities indefinitely.

The nucleotide was prepared at first by us and later by the Smith, Kline and French Company by the usual method of alkaline hydrolysis at room temperature, according to the technic of Jones and Perkins.[6] The solution, after hydrolysis is complete, is made acid with acetic acid and the crude nucleotide precipitated as the lead salt, which in turn is decomposed with hydrogen sulphide and the filtrate containing the purified nucleotide is evaporated under diminished pressure at a maxi-

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[*] The expenses of this work were defrayed in part by grants from two anonymous donors and from the Smith, Kline and French Company, Philadelphia.

[*] From the Thorndike Memorial Laboratory, the Second and Fourth Medical Services (Harvard), and the Pathological Laboratory, Boston City Hospital, and the Department of Medicine, Harvard University, and the Collis P. Huntington Memorial Hospital.

[1] Jackson, Henry, Jr.: J. Biol. Chem. **59**: 529 (April) 1924.

[2] Jackson, Henry, Jr.; Parker, Frederic, Jr.; Robb, G. P., and Curtis, Helen: Folia haemat. **44**: 30 (April) 1931.

[3] Ames, Delano; and Huntley, A. A.: The Nature of the Leukocytosis Produced by Nucleinic Acid: A Preliminary Study, J. A. M. A. **29**: 472 (Sept. 4) 1897. Doan, C. A.; Zerfas, L. G.; Warren, Sylvia; and Ames, Olivia: J. Exper. Med. **47**: 403 (March) 1928.

[4] Reznikoff, Paul: J. Clin. Investigation **9**: 381 (Dec.) 1930.

[5] Reznikoff, Paul: J. Clin. Investigation **9**: 555 (Feb. 20) 1931.

[6] Jones, W., and Perkins, M. E.: J. Biol. Chem. **62**: 559 (Jan.) 1925.

blood cell count fell following this procedure. Each received three intravenous injections of nucleotide on admission. In each the temperature then promptly fell to normal but, owing to the short treatment, no essential change occurred in the blood picture and treatment was not resumed until two weeks later. In these chronic cases, in which, however, the patients were extremely ill, treatment was given for two weeks and then interrupted for two weeks over a period of four months. Only by such alternation could evidence as to the effectiveness of the material be obtained. In case 2 spontaneous recovery probably was taking place from the beginning, for at the end of each control period the white blood cell count was definitely higher than at the beginning of that period. At the end of each treatment period the same was true but the percentage rise during the treatment periods was consistently more than twice that during the successive control periods. In short, if no nucleotide was given the patient gained, but he gained faster under treatment.

The red blood cell and platelet counts rose *pari passu* with the white blood cell count and the patient was discharged entirely well two and a half months after entrance to the hospital.

In case 1, in spite of blood transfusion shortly after admission, both the white and the red blood cell count fell and continued to do so during the initial control period and during each successive control period the white blood cell count again fell, though less and less each time, until during the last interval without treatment the patient made a slight, spontaneous recovery so far as his white blood cell count was concerned. During the successive weeks of treatment between the control periods, however, there was a consistent rise in white blood cell count each time. This patient still is under observation. We feel that the evidence that the nucleotide acted favorably on the marrow is clear in each instance, particularly in case 1. Emphasis has been laid on the white blood cell counts rather than the red blood cell counts in these benzene cases as examination of case reports[9] makes it evident that on the white blood cell count depends the prognosis.

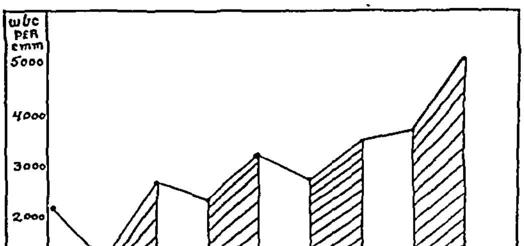

Chart 1.—Leukocytes in case 1, benzene poisoning: blank areas, no nucleotide; crosshatched areas, dosage with nucleotide.

The evidence for the effectiveness of the nucleotide in conditions of acute or subacute leukopenia rests in the uniform, prompt reaction on the part of the blood, the uniform and prompt fall of temperature and the consistent healing of mucous membrane ulcerations.

The evidence in the benzene cases consists in the consistently greater improvement in both cases when under nucleotide treatment than when this was withheld.

One can hardly expect, particularly in so small a series as this, to draw conclusions from a comparison of mortality rates. The conditions are too diverse to ascribe a general mortality, but the latest summary of cases[5] gives a mortality of 82 per cent and there seems to be but little evidence that the mortality of septic processes, uncontrolled by usual methods and associated with extreme leukopenia, differs markedly in its prognosis from that of classic agranulocytic angina. The mortality of our entire series, exclusive of the benzene cases, is 33 per cent in adequately treated cases. We feel that certainly no less than 60 per cent and probably 80 per cent of these patients would have died had they not received the nucleotide.

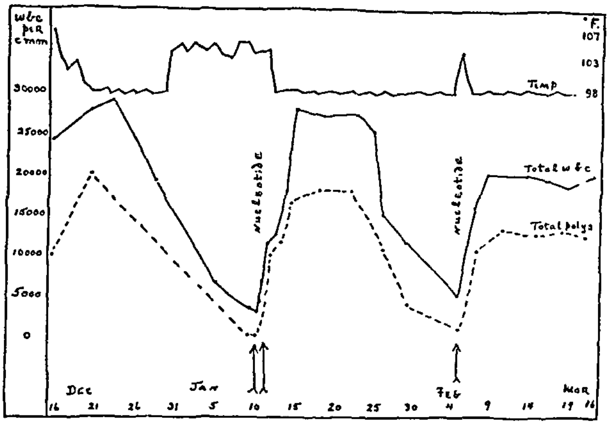

Chart 2.—Temperature and leukocytes in case 5.

We feel, however, that less stress should be laid on the mortality statistics than on the peculiarly uniform favorable reaction of the blood, improvement taking place quite consistently about the fifth day, irrespective of the duration of disease prior to such treatment. It is noteworthy that previously published cases of cures do not follow this rule and that improvement was slow in these and occurred at various intervals after treatment was begun.

CONCLUSIONS

1. Twenty cases of malignant neutropenia of varied etiology have been treated with intramuscular and intravenous injections of nucleotides (K 96).

2. In fourteen of these twenty cases, recovery took place.

3. Clinical and hematologic improvement occurred quite consistently about five days after treatment was begun.

4. We believe that these nucleotides may have a definitely favorable effect on an inactive bone marrow in certain cases of malignant neutropenia and we believe that the substance is worth further trial in such cases.

5. The material is apparently of no benefit in leukemia or sepsis without neutropenia and leukopenia.

REPORT OF CASES[10]

Case 1.—N. B., a white man, aged 24, a rubber worker, who entered the hospital, May 6, 1931, had been exposed to benzene fumes for thirteen months. Six months before entry he began to notice fatigue, weakness, dyspnea and pallor. These symptoms increased to the time of entry. On entrance, physical examination was essentially normal except for extreme pallor. His temperature was 100 F. The white blood cell count was

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[9] Hunter, F. T., and Hanflig, S. S.: Boston M. & S. J. **197:** 292 (Aug. 25) 1927.

[10] For the sake of brevity, only four illustrative cases have been selected for immediate publication. The full case reports will appear in the reprints.

29th, six days after treatment was begun. Her white blood cell count remained between 300 and 500 per cubic millimeter until July 30, seven days after treatment was instituted, when it rose to 1,700 with 48 per cent polymorphonuclear neutrophils, 1 per cent eosinophils, 28 per cent lymphocytes and 5 per cent monocytes. The blood platelets were normal throughout the course of her illness. The throat condition rapidly improved and the patient was entirely well, Aug. 3, 1931.

GASTRO-INTESTINAL ALLERGY *

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The frequency of gastro-intestinal symptoms arising from food allergy necessitates the writing of a new chapter in gastro-enterology. This is emphasized by my [1] experience, which indicates that food allergy explains much gastric and intestinal distress, some of which has eluded satisfactory diagnosis in the past.

LITERATURE

Gastro-intestinal symptoms in allergic patients have been noted by many observers. Smith [2] in 1909 described such disturbances resulting from buckwheat allergy. Richet recognized alimentary allergy in the first years of his studies and was responsible for the monographs of Barnathan [3] and of Laroche, Richet and Saint Girons [4] on the subject. In 1917, Cooke [5] reported the frequency of gastro-intestinal symptoms due to food sensitization. Schloss [6] in 1915 and especially in 1920 described the abdominal disturbances due to food allergy in infants and children. It remained for Duke [7] in 1921 and 1923 to stress the occurrence in adults of pain and other abdominal symptoms due to this cause. Since then, Andresen,[8] in a comprehensive article in 1925, Eyermann [9] in 1927, Alexander [10] in 1927 and Vaughan [11] in 1928 and 1930 have developed the subject. These articles as well as my contributions during the last six years and those of other students have been recently summarized.[1]

GENERAL CONSIDERATIONS

The following points must be remembered in the discussion of the subject:

1. Food allergy probably produces more symptoms in the gastro-intestinal tract than in any other part of the body, because of the contact of foods with its tissues.

2. Gastro-intestinal food allergy may originate at any time of life. It occurs most frequently in infancy and childhood. After its onset it is apt to persist for many years, as shown in table 3.

3. The various alimentary symptoms probably arise from edema of the mucous membrane and spasm of the smooth muscle, which produce disturbances in peristalsis and in function. It is likely that lesions similar to urticaria, canker sores, dermatitis and angioneurotic edema also occur in the gastric and intestinal mucosa.

4. Hepatic reactions are not infrequent, as will be shown later in this paper. Such reactions occur experimentally, especially in the dog. Allergic reactions in the urogenital tract, including the uterus, may also produce abdominal distress and pain.

5. Symptoms may be immediate, delayed or cumulative. After the elimination of the causative foods, symptoms may disappear in a few hours or may require from ten to fourteen days. In fact, symptoms at times persist for three or four weeks until the specific proteins are finally disengaged from the cells in the sensitized tissues.

6. The frequency of mild alimentary symptoms due to food allergy must be mentioned. Such symptoms are undoubtedly more frequent than the marked or severe ones.

Table 1.—*One Hundred and Fifty Patients with Gastro-Intestinal Food Allergy*

Age, Years	No. of Patients
0–10	7
10–20	9
20–30	23
30–50	72
50–70	39

7. Patients may be sensitive to a large number and variety of foods in the same way that they may be sensitive to all types of pollens. Various foods, moreover, produce varying symptoms in the same patient.[12]

8. Skin reactions by the cutaneous as well as by the intradermal method are infrequent in food allergy, especially after infancy. This is especially true in gastro-intestinal allergy as noted by several observers, particularly by Schloss.

9. The diagnosis and treatment of gastro-intestinal food allergy must be made (1) by means of diet trial for which my "elimination diets" are useful; (2) with the help of the patient's history of food dislikes and disagreements, and (3) with the aid of any skin reactions which occur and which can be shown by actual diet trial to be indicative of allergy.

Since food is the most frequent cause of gastro-intestinal allergy, this contribution will deal with it entirely. Alimentary reactions due to pollen sensitization have been described by Duke,[13] Eyermann,[9] Cohen [14] and myself.[1] The evidence for bacterial allergy as a cause of gastro-intestinal symptoms is not especially clear.

For purposes of discussion, a careful analysis of 150 cases of gastro-intestinal allergy with good or excellent results have been made. This is an extension of a similar study [1] on fifty cases, recently published.

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* Read before the Section on Gastro-Enterology and Proctology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Rowe, A. H.: Food Allergy, Its Manifestations, Diagnosis and Treatment with a General Discussion of Bronchial Asthma, Philadelphia, Lea & Febiger, 1931.

[2] Smith, H. C.: Buckwheat Poisoning, Arch. Int. Med. **3:** 350 (May) 1909.

[3] Barnathan, Leon: Alimentary Anaphylaxis, Clinical and Experimental Studies, Thèse, Paris, 1910-1911.

[4] *Laroche, Guy; Richet, Charles, Jr.,* and *Saint Girons, Francois:* Alimentary Anaphylaxis, translated by Rowe, University of California Press, 1930; French edition, Paris, 1919.

[5] Cooke, R. A.: Protein Sensitization in the Human with Special Reference to Bronchial Asthma and Hay Fever, M. Clin. North America **1:** 721 (Nov.) 1917.

[6] Schloss, O. M.: Allergy to Common Foods, Arch. Pediat. **32:** 349, 1915; Allergy in Infants and Children, Am. J. Dis. Child. **19:** 433 (June) 1920.

[7] Duke, W. W.: Food Allergy as a Cause of Abdominal Pain, Arch. Int. Med. **28:** 151 (Aug.) 1921; Food Allergy as a Cause of Illness, J. A. M. A. **81:** 886 (Sept. 15) 1923.

[8] Andresen, A. F. R.: Gastro-Intestinal Manifestations of Food Allergy, M. J. & Rec. **122:** 271 (Sept. 2) 1925.

[9] Eyermann, C. H.: X-Ray Demonstration of Colonic Reaction in Food Allergy, J. Missouri M. A. **24:** 129 (April) 1927.

[10] Alexander, H. L.: Localized Allergy, M. Clin. North America **11:** 399 (Sept.) 1927.

[11] Vaughan, W. T.: Allergic Factor in Mucous Colitis, South. M. J. **21:** 894 (Nov.) 1928. Food Allergy in the Specialties and in General Medicine, Virginia M. Monthly **56:** 725 (Feb.) 1930.

[12] For instance, one patient found that "onions gave appendiceal pain, rice gave nasal congestion, milk puffed her face and made her toxic and stupid, and peaches gave a generalized dermatitis."

[13] Duke, W. W.: Food Allergy as a Cause of Abdominal Pain, Arch. Int. Med. **28:** 151 (Aug.) 1921.

[14] Cohen, M. B., cited by Ecker, E. E., and *Bisking, M. S.:* Allergic Reactions of the Rabbit's Intestine During Anaphylactic Shock as Recorded Cinematographically, Arch. Path. **7:** 391 (March) 1929.

that pollen allergy as well as food allergy may give rise to this condition.

ABDOMINAL PAIN AND SORENESS

Abdominal pain and soreness due to food allergy may occur in any part of the abdomen and may simulate acute as well as chronic conditions which may lead to unnecessary surgery.. This has recently been stressed by Alvarez,[19] and many years ago Osler[20] warned against surgical intervention in such patients.

1. Colonic pain and soreness due to food allergy are quite common. They occur most frequently in the cecum and ascending colon and are due in part to the normal delay of food residues in this part of the bowel. Such pain often leads to unnecessary operations, as will be pointed out. A dull, rather constant, burning distress is characteristic. Former abdominal scars often become tender in the presence of food allergy and suggest the possibility of adhesions or of small ruptures. These symptoms may be confined to the lower part of the abdomen, but more often the whole right side is affected. The distress may radiate into the right flank and back or be present over the hepatic area as discussed later.

Allergic reactions may produce soreness and pain in any other part of the colon. At times the whole large bowel is affected, especially in the presence of mucous colitis. At other times, the region of the splenic flexure, the descending bowel, the sigmoid or the rectum may be the seat of localized allergy. It is my opinion that the so-called irritable bowel, for which no satisfactory etiology has been found, may be due to food allergy.

(*a*) Symptoms suggesting acute or chronic appendicitis may be due to food allergy. Lintz[18] has stressed this possibility and has felt that many appendixes are removed unnecessarily because of such allergic reactions. My experience corroborates his opinion, as evidenced by 32 appendectomies performed on my 150 patients, with practically no relief. As stated before, allergic reactions in the cecum and in the appendix can predispose to secondary infection. The fact that acute allergy may produce fever,[1] as well as leukocytosis, must be kept in mind in differential diagnosis. Eosinophilia, moreover, is not necessarily present in allergy. Pain and soreness in the lower right quadrant without rigidity necessitate the consideration of such sensitization as a possible cause. However, operations should never be postponed when involuntary rigidity and other typical symptoms of acute appendicitis are present, even though there is evidence of food allergy in the patient.

(*b*) Symptoms suggesting cholecystitis may arise from food allergy, as reported by me[1] in 1928 and by Graham, Cole, Copher and Moore in 1929.[21] These writers, in their book on the gallbladder, on the basis of the studies of Alexander and Eyermann enumerated food allergy as a third possibility in their differential diagnosis of cholecystitis. Their second consideration, moreover, was mucous colitis, which, in my experience and in that of Vaughan,[11] Hollander,[22] Beecher,[23] Balyeat[24] and others, is frequently due to food allergy. Soreness in the upper right quadrant, due to food allergy, may be due to a colonic reaction as suggested by Eyermann.[9] In my opinion it may also be due to an allergic reaction in the liver itself, as evidenced by the swelling of the liver and slight jaundice, which have been reported in severe migraine.[1] I have also observed swelling of the liver and mild jaundice in one patient without migraine who had symptoms of cholecystitis. Her examinations were entirely negative and she was completely relieved by "elimination diets," which excluded all vegetables except spinach, carrots and artichokes. The rather common occurrence of such pain in the upper right quadrant is shown by its presence in 17 per cent of my 150 patients.

Food allergy produces distress in the upper right quadrant, for which unnecessary cholecystectomies have been done in the past, even in the presence of negative roentgen observations and of a gallbladder that appeared normal at operation. In my present series of 150 patients, the gallbladder was removed in 8 patients without symptomatic relief. It must be mentioned that allergy in the liver and in the gallbladder may predispose to cholecystitis and gallstones, as originally suggested by Duke.[7]

(*c*) Pain and soreness suggesting peptic ulcer may also occur in patients suffering with food allergy. When roentgen studies are negative, such a cause should be kept in mind. This was necessary in nine of my patients in whom the symptoms were controlled by "elimination diets."

As I have already stated, lesions in the gastric or duodenal mucosa similar to canker sores in the mouth probably occur as a result of food allergy. Because of the action of the digestive juices these sores might produce peptic ulcers. At present I am studying a patient with an early peptic ulcer whose pain is well controlled by frequent feedings of a soft and liquid modification of my routine "elimination diets" 1 and 2, but who has a severe migraine and a recurrence of ulcer pain when she takes milk for a few days.

In 1926, Carr[25] studied a man with a duodenal ulcer who had severe headache, nausea, drowsiness, urticaria, a fever of 101.2 F. and tender painful joints whenever he was placed on a milk diet. Sterling[26] reported two such cases in 1929 and I have reported three others. Such allergy must be kept in mind in the use of a routine Sippy diet and enforces the necessity of ever remembering that allergic reactions may be present to any food in a diet.

(*d*) Pain suggesting intestinal obstruction may be due to food allergy. Such pain may be very severe, sudden or rather gradual in onset and may be associated with nausea, vomiting, bowel tenesmus and severe spasm. Mild fever and leukocytosis may occur. Angioneurotic edema of the intestine has been found at operation, as reported in the literature.[1] It is probable that severe localized allergic spasm in the small intestine might also cause such symptoms. When allergy is suspected, the effect of several hypodermic injections of epinephrine (10 to 15 minims [0.6 to 0.9 cc.] of a 1 : 1,000 dilution) and of large warm enemas should be determined. If the symptoms persist and definite involuntary rigidity is present, exploratory operation should not be delayed.

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[19] Alvarez, W. C.: Food Sensitiveness and Conditions That May Be Confused with It, M. Clin. North America **12**: 1589 (May) 1929.

[20] Osler, William: On the Surgical Importance of the Visceral Crises on the Erythema Group of Skin Diseases, Am. J. M. Sc. **127**: 751, 1904; Visceral Lesions of Purpura and Allied Conditions, Brit. M. J. **1**: 517, 1914.

[21] Graham, E. A.; Cole, W. H.; Copher, G. H., and Moore, Sherwood: Diseases of the Gallbladder and Bile Ducts, Philadelphia, Lea & Febiger, 1928.

[22] Hollander, E.: Mucous Colitis Due to Food Allergy, Am. J. M. Sc. **174**: 495 (Oct.) 1927.

[23] Beecher, W. L.: Allergic Mucous Colitis, Clin. Med. & Surg. **36**: 568 (Aug.) 1929.

[24] Balyeat, R. M.: Allergic Diseases: Their Diagnosis and Treatment, Philadelphia, F. A. Davis Company, 1930.

[25] Carr, J. G.: Hypersensitiveness to Milk Complicating the Treatment of Duodenal Ulcer, M. Clin. North America **9**: 1409 (March) 1926.

[26] Sterling, A.: *Food Allergy or Gastro-Intestinal Anaphylaxis*, Med. J. & Rec. **129**: 610 (June 5) 1929.

result is never obtained. The successful desensitization to foods by hypodermic and oral methods has been described in the literature,[1] though such results are usually difficult to obtain.

3. Denaturization of foods by heat has been reported for many years as a successful method of modifying the protein molecule, thereby destroying its allergic reaction. Recently Ratner [27] has emphasized its value. Lactic acid milk or milk cooked with or without cereal for long periods, and other dried or heated foods have been suggested. Recently a superheated milk has been advised. In my experience, however, many patients cannot tolerate such modified foods.

4. General therapy consists of the following measures:

(*a*) Impaired digestion must be remedied. In fact, this has been offered as a cause of the allergic reactions to foods, originally by Richet and recently by Brown.[28] However, my experience does not substantiate such a possibility. Stomach analyses were done on eighty of my patients in whom any indication for such study was present. Normal results were found in 81 per cent and achylia was present in only 10 per cent.

If a deficiency of acid is found, proper acid therapy will often help digestion, though it does not prevent allergic reactions from specific foods. The acid therapy suggested by Brown and recently by Beckman [29] has also been used, without results in patients in this series. The use of trypsin, pancreatin and pepsin in large and small doses and in enteric coated capsules and granules, moreover, has been of no help in preventing allergic reactions to foods.

(*b*) The use of peptone hypodermically and orally has ameliorated symptoms due to food allergy in a few patients. In general, however, it has been useless. At present some indications of relief are resulting from my use of specific food peptones as suggested by Urbach,[30] especially in patients with dermatitis. No definite conclusions of their value in gastro-intestinal symptoms due to food allergy are possible at this time.

(*c*) Calcium therapy, the use of quartz light, sun therapy, viosterol, and nonspecific vaccine and protein therapy have been of little help. However, their possible effect on membrane permeability must be kept in mind. Likewise the demonstrated effect of humidity [1] on membrane permeability, as an explanation of the relief that dry climates accord certain symptoms due to food and other types of allergy, must be remembered. Various measures for the improvement of general health and energy are important. Epinephrine in from 8 to 15 minim (0.5 to 0.9 cc.) doses of a 1:1,000 dilution may be tried for the relief of acute allergic alimentary symptoms. Failure of relief, however, cannot rule out food allergy.

The use of enemas or colonic irrigations hastens the recovery from symptoms due to food allergy in some patients. However, it does not eliminate the food proteins bound up with the cells of the sensitized body tissues, and I have never used such measures as a routine.

(*d*) As already stated, gastro-intestinal allergy is at times associated with pathologic conditions such as appendicitis, cholecystitis or peptic ulcer. These conditions should be treated according to accepted methods while proper diets control the food allergy. Nervousness as a common cause of indigestion, as stated by Alvarez,[31] is of marked importance, though it should not be too readily accepted as the sole cause of symptoms in patients in whom indications of allergy exist.

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ABSTRACT OF DISCUSSION

Dr. Warren T. Vaughan, Richmond, Va.: In those cases in which I have failed to get positive skin reactions, my experience with the elimination diets is entirely comparable to that of the author. Dr. Rowe has drawn up a series of elimination diets which may be tried one after another until one is found which relieves the patient of symptoms. Then one food after another is added until one is found which produces symptoms and this is then permanently left out of the diet. In this way the diet is built up. The sensitization studies fail to show the positive allergenic food in about 50 per cent of cases, but I wish to emphasize that any method which will relieve the physician of 50 per cent of his subsequent labor should be employed as a preliminary basis for the study. As a rule, sensitization is multiple. If skin tests are not done first, and the patient happens to be sensitive to three, four or five different foods, several of which appear in the elimination diets, he will not be relieved at all. The elimination diets save a great deal. They can be tried first, if desired, but if relief is not afforded one should bear in mind that the patient may still have food allergy. The case has not been completed until after the sensitization studies have been made also, and in my own experience these should be the point of departure.

Dr. John L. Jelks, Memphis, Tenn.: I have recognized and in my writings have reclassified types of colitis, one variety being allergic colitis. It is as much an entity as anything one may find. If one looks into an intestine through a sigmoidoscope at, for instance, an amebic ulceration, where the epithelium has been eroded, one will find food products sticking to those areas; they do not stick to a normal mucous membrane. I have not only reclassified colitis, one type being allergic, but I have described that colitis as edematous, red mucous membrane. There is one variety of allergic colitis that has been of supreme interest to me. I have suspected, at least, that there is an allergic state set up by protozoan, protein material, for, as I get rid of amebic histolytica protozoa, my patients get better or are relieved of that allergic state. I frequently find it necessary to use the method of elimination of certain diets and especially I find in many of these cases acute conditions in which it is necessary to use epinephrine.

Dr. A. F. R. Andresen, Brooklyn: I want to stress the importance of a complete gastro-intestinal study in all cases of suspected allergy, because so frequently an organic condition coexists with the allergy. Dr. Rowe spoke of milk sensitization and called attention to the fact that the milk-barium mixture used in a roentgen study might cause allergic manifestations while passing through the gastro-intestinal tract. We have found that the cocoa mixtures now used with barium must also be considered in that connection because many patients are sensitive to cocoa, and very peculiar disturbances of motility have been found in these individuals in the course of a gastro-intestinal series. I have found at times in patients in whom I have suspected an acute condition of the abdomen that a dose of solution of epinephrine, from 12 to 15 minims (0.75 to 1 cc.) intramuscularly, will clear up the symptoms as rapidly as a similar injection will sometimes clear up an asthmatic attack. Such an injection cannot do harm and is often distinctly helpful. I am glad that Dr. Jelks spoke of colitis as being occasionally allergic in origin. I feel that many cases are due to allergy, and the removal of certain foods to which the patient is sensitive will be the beginning of an improvement. Final relief of all symptoms will take a longer time, as the organic changes take time to clear up. As Dr. Rowe emphasized, no specific protein therapy has yet been of essential help. The real treatment consists in the removal of the offending foods from the diet.

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[27] Ratner, Bret: Possible Cause of Food Allergy in Certain Infants, Am. J. Dis. Child. **36**: 277 (Aug.) 1928.

[28] Brown, O. H.: Food Sensitization and Its Treatment, Southwestern Med. **13**: 210 (May) 1929.

[29] Beckman, Harry: Allergy and the Acid Base Balance, J. A. M. A. **95**: 1582 (Nov. 22) 1930.

[30] Urbach, E.: Oral Desensitization in Dermatoses Due to Food Allergy by Means of Specific Peptones, Klin. Wchnschr., 1930, p. 2046.

[31] Alvarez, W. C.: Nervous Indigestion, New York, Paul B. Hoeber, Inc., 1930.

TREATMENT OF ADDISON'S DISEASE WITH THE CORTICAL HORMONE OF THE SUPRARENAL GLAND

SUMMARY OF IMMEDIATE RESULTS IN TWENTY CASES TREATED WITH THE PREPARATION MADE BY SWINGLE AND PFIFFNER *

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Investigators have attempted for many years to isolate the cortical hormone of the suprarenal gland in such a form that it might be used in the treatment of Addison's disease. The preparation of an extract of the suprarenal cortex that would maintain indefinitely the life of completely suprarenalectomized cats was announced by Swingle and Pfiffner[1] in March, 1930. Their method of extraction[2] was such that they were able not only to obtain an active extract but also to obtain it in such quantity as to permit its use in the treatment of patients with Addison's disease. The Mayo Clinic was permitted to test this product clinically.[3] In January of this year, four of us[4] reported the results obtained in the treatment of seven cases of Addison's disease. The results showed that this extract is strikingly effective in these cases and is life saving in some. We now wish to summarize our experience with this material in the treatment of twenty patients with Addison's disease and in the treatment of twenty patients presenting various other complaints.

Before the results are presented, it is essential to realize that the supply of the hormone has been meager, the shipments irregular, and that our patients, after preliminary treatment in Rochester, have returned to their homes in various parts of the country. An effort has been made to learn the subsequent progress of these patients and to help their physicians at home in their continued care. It should be realized, further, that from time to time patients in various stages of Addison's disease have appeared at the clinic without previous warning; some have been brought into the hospitals on stretchers in a condition of collapse and in dire need of treatment. This has happened at times when hormone was not available for treatment. In order to appreciate the difficulties, it is further necessary to realize that the majority of these cases are tuberculous in origin and that tuberculous processes must be combated in other organs and tissues as well as in the suprarenal glands.

The histories of the first seven cases of our experience have been presented in the earlier report.[4] Only the subsequent developments in these cases are reported here.

RESULTS

The response of the majority of these patients to treatment has been striking. The nausea and vomiting stop, and the appetite reappears. There is gain in weight and strength. The pigmentation decreases, and the patients regain a sense of both physical and mental vigor and well being. The blood pressure may increase slightly but this for the most part is a response to increased activity and not a specific effect of the cortical extract. Almost all the patients who received adequate treatment made this type of response, although there has been considerable variation in the behavior of individual patients. From the standpoint of detailed consideration the cases may be presented in groups. The cases will be numbered consecutively throughout, but cases which have been reported before will be designated.

Group 1.—The patients of this group did not do well, even though apparently they were given adequate treatment. There was one case in this group:

Case 1 (the fifteenth case in our experience; not reported before).—A married Jewish woman, aged 44, was admitted to the hospital, March 5, 1931. She was carried in on a stretcher because of extreme weakness, which was her main complaint. Five years before her admission she had suffered with an attack of "influenza" which had lasted from two to three weeks, and since that time she had never felt strong and well. For from eighteen to twenty-four months before her admission she had complained of exhaustion, pains in the lumbosacral region, and dyspnea on exertion, with frequent attacks of nausea, anorexia and extreme weakness, which had confined her to bed for several days at a time. About eight months before admission to the hospital, a diffuse brown pigmentation of the skin with scattered brown and black freckles had appeared. During the last three months she had been more or less continually nauseated, had vomited occasionally, had lost 35 pounds (16 Kg.) and had been bedridden. Her home physician had made a diagnosis of Addison's disease and for the last year had administered the Muirhead treatment.

The patient presented the picture of complete exhaustion. The entire skin was brown, with more pronounced pigmentation over the forehead, about the eyes, over the lower part of the spinal column, about the nipples, and around the anus. There were innumerable dark freckles scattered over the body. The mucous membrane lining the mouth was diffusely pigmented. The heart was small and the sounds were faint. The blood pressure was 105 mm. of mercury, systolic and 70 diastolic. The lungs and abdomen were negative to examination, and pelvic and rectal examination revealed nothing unusual. Laboratory studies disclosed a normal erythrocyte and leukocyte count and a normal concentration of hemoglobin. Blood chemical values were essentially normal. Results of urinalysis and the Wassermann test of the blood were negative. Excretion of phenolsulphonphthalein was 60 per cent in two hours. The basal metabolic rate was recorded as —33 and —28 per cent. Roentgenograms of the thorax and of the suprarenal regions gave negative results.

In the first two weeks of hospitalization the patient was given 30 cc. of the cortical hormone. There was a moderate but definite diminution of the pigmentation over the forehead and nose, and the basal metabolic rate rose to —21 per cent. It was decided to attempt more vigorous treatment, and in the next ten days 80 cc. of the cortical hormone was administered. At this time the patient felt improved, she slept well, ate better than at any time previously, and did not complain of nausea. She continued, however, to feel exhausted and extremely weak,

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* From the Division of Medicine, the Mayo Clinic, and the Department of Biology, Princeton University.

* Read before the Section on Pharmacology and Therapeutics at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Swingle, W. W., and Pfiffner, J. J.: An Aqueous Extract of the Suprarenal Cortex which Maintains the Life of Bilaterally Adrenalectomized Cats, Science **71:** 321-322 (March 21) 1930.

[2] Swingle, W. W., and Pfiffner, J. J.: Studies on the Adrenal Cortex: I. The Effect of a Lipid Fraction upon the Life-Span of Adrenalectomized Cats, Am. J. Physiol. **96:** 153-163 (Jan.) 1931; II. An Aqueous Extract of the Adrenal Cortex Which Maintains the Life of Bilaterally Adrenalectomized Cats, ibid. **96:** 164-179 (Jan.) 1931. Pfiffner, J. J., and Swingle, W. W.: Studies on the Adrenal Cortex: III. The Revival of Cats Prostrate from Adrenal Insufficiency with an Aqueous Extract of the Cortex, ibid. **96:** 180-190 (Jan.) 1931.

[3] Rowntree, L. G.; Greene, C. H.; Swingle, W. W., and Pfiffner, J. J.: The Treatment of Patients with Addison's Disease with the "Cortical Hormone" of Swingle and Pfiffner, Science **72:** 482-483 (Nov. 7) 1930.

[4] Rowntree, L. G.; Greene, C. H.; Swingle, W. W., and Pfiffner, J. J.: Addison's Disease: Experiences in Treatment with Various Suprarenal Preparations, J. A. M. A. **96:** 231-235 (Jan. 24) 1931.

There were increased mottling and freckling on the exposed surfaces and a great deal of pigmentation around the lips and mouth. The tonsils were infected. The systolic blood pressure was 100 and the diastolic 70 in millimeters of mercury. The remaining examination gave essentially negative results. The urine was normal. The proportion of eosinophils in the differential blood count was from 25 to 35 per cent. There was no demonstrable pulmonary lesion. Roentgenograms of the suprarenal regions contained the shadows of well marked bilateral calcified lesions. The basal metabolic rate was normal.

The patient was given 75 cc. of cortical hormone intravenously, with general improvement in symptoms and lessening of pigmentation, although this was not as striking as in some cases. Nineteen days after admission, when he was preparing to go home, slight sore throat developed. The next day he had a chill, and the temperature rose steadily in two days to 104.2 F. He was delirious, was greatly prostrated, and signs of meningeal irritation were marked. He was coughing up bloody sputum, and examination disclosed well developed bronchopneumonia, which was confirmed by roentgenograms. The pharynx was acutely inflamed, the tonsils almost meeting in the median line. He was given daily injections of cortical hormone; in all, 85 cc. over a period of six days. In cultures from the throat and sputum were Streptococcus mitior (viridans) and Streptococcus hemolyticus.

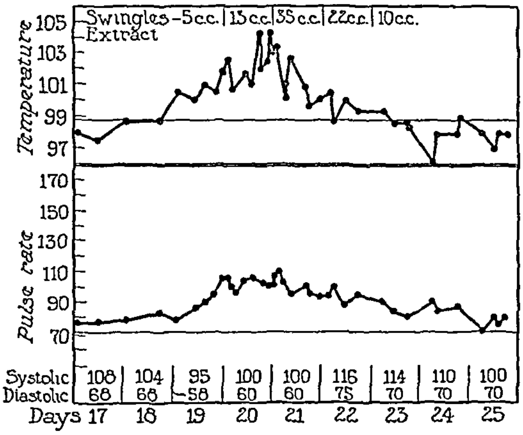

Chart 1.—Temperature and pulse in case 4 (the tenth case *in* our experience) in the course of acute streptococcal sore throat treated with cortical hormone.

On the sixth day after the beginning of infection, all symptoms had disappeared, the temperature was normal, and the patient felt so well that he wanted to get up. The pigmentation had almost disappeared. So rapid a recovery from severe respiratory infection would be noteworthy in an otherwise healthy person. It is all the more so in a case of severe Addison's disease, for the susceptibility of the latter to intercurrent infection is well known. We feel that recovery would not have been possible without the use of the cortical hormone.

This patient has remained well since dismissal from the clinic but has required injection of 5 to 10 cc. of cortical hormone once or twice a week.

Case 5 (the second case in our experience; reported before). —This patient has been in fairly good condition since leaving the clinic, but his condition has necessitated frequent injections of the cortical hormone, and he has been unable to go back to work.

Cases 6, 7 and 8 (the eighth, eleventh and seventeenth cases in our experience; neither reported before).—These cases showed the same general type of response to treatment as the two preceding ones.

Such cases are very unsatisfactory from the standpoint of treatment, for while the treatment to date has apparently been life saving, it has not been possible to rehabilitate the patient. Whether further improvement could be produced by daily injection of considerable amounts of cortical hormone is a question which we have not been able to answer with the present limited supply.

Group 4.—This group is composed of cases in which there was excellent response to treatment while the patients were at the clinic. However, they did not continue treatment at home and died in crisis without a further adequate course of treatment with the cortical hormone. There are three cases in the group.

Case 9 (the first case in our experience; reported before).—This patient was dismissed from the hospital, July 16, 1930. On his dismissal he was given a small supply of the hormone, which was administered by his physician at home. He did well for a little while; then he failed, and finally he went into coma, and died, November 11. The family had been warned as to the serious nature of his condition and had been advised to write for a further supply of the cortical hormone if the patient did not do well. We were not notified of his condition, however, and he had not had the hormone in the six weeks preceding his death.

Case 10 (the sixth case in our experience; reported before). —This patient was dismissed from the clinic, Oct. 16, 1930. His trip home was uneventful. Twenty-five cubic centimeters of the hormone was administered by his physician at home from October 21 to October 26. During this period he was in good condition. November 10, he began to fail; he lost his appetite, and nausea and marked prostration developed. A further supply of the hormone was sent, November 25, but proved to be wholly ineffective. There was no improvement in the patient's condition; he continued to fail, and he died, Decmeber 2. Word was received at the same time, from Dr. Swingle, that the batch of hormone of which a portion had been sent to this patient, November 25, had been tested on animals and had been found to be wholly without action.

Case 11 (the third case in our experience; reported before). —This case was similar to the two preceding cases.

These three patients responded well to treatment while they were at the clinic. It was not possible at the time to continue the treatment with the cortical hormone indefinitely after the patients left the clinic, and death in each case occurred several weeks after they had been dismissed from observation. These deaths, therefore, are evidence of the need for continued treatment with the cortical hormone rather than of its failure as a therapeutic agent. The cases occurred early in the series when the supply of hormone was most limited and irregular. In each case death was apparently preceded by a period of decline and gradual clinical failure. Treatment with the cortical hormone during this period possibly would have had as dramatic an effect as when first used on these patients. However, these three cases emphasize the importance of continuous medical supervision of patients with Addison's disease, in order, if possible, to anticipate rather than to relieve the period of crisis.

Group 5.—The nine patients in this group made good response to treatment while they were at the clinic and have done well since dismissal.

Case 12 (the ninth case in our experience; not reported before).—A farmer, aged 20, was admitted, Dec. 31, 1930, complaining of weakness and discoloration of the skin. He had been exposed to tuberculosis between 1925 and 1928.. He remembered having tried to whiten his skin in 1925 by the use of lemon juice because it was a "dirty brown color." In August, 1928, he had noticed that his skin was unusually pigmented, but he had thought this to be due to sunburn. He had been doing heavy manual labor at this time. Within the next month he had noticed marked diminution in strength. He had been able to continue his work, but when he returned to school he had become progressively more tired and weak and had noticed that his summer tan had not faded. In spite of a basal metabolic rate ranged from —1 to —10 per cent. A sugar tolerance test showed a normal condition. Roentgenograms of the thorax were negative. Roentgenograms of the suprarenal regions showed nothing on the left, but there was a small area of increased density suggestive of calcification on the right.

After a period of preliminary study in the hospital, 70 cc. of cortical hormone was given in divided doses in the course of a week. There was marked improvement in the patient's appetite; his intake of food increased from 1,800 to 4,400 calories and there was an associated gain from a weight of 125 to 134 pounds (56.7 to 60.8 Kg.). There was also improvement in strength, a feeling of well being, and disappearance of constipation. During a period of six weeks without treatment there was gradual loss of strength, and the weight fell back to 129 pounds (58.5 Kg.). The patient had much difficulty with constipation and became prostrated. Further supplies of the hormone again became available. He was given 60 cc. in the course of the next five days, and improvement was more striking than the first time. He was up and around, and played thirty-six holes of golf without difficulty. He gained to 142 pounds (64.4 Kg.). Between April 10 and April 19 he was given an additional 90 cc. of hormone. There were no distinct effects from overdosage. He was perhaps a little more restless and apprehensive, and apparently abnormally sensitive to heat, although there was no fever. There was no change in the basal metabolic rate. He noticed that he had to shave daily when formerly he had shaved only three times a week. Ten days later his appetite was not quite so acute, his bowels moved less regularly, and he ceased to gain in weight. He was given an additional 30 cc. of hormone to protect him against the fatigue of the journey to Seattle and was dismissed from the clinic, April 28. At that time he was advised to take suprarenal cortex, 5 grains (0.3 Gm.), three times a day by mouth. The trip to Seattle was made without incident, and he has been in fairly satisfactory clinical condition since then. He has, however, required two or three small doses of hormone each week to maintain his activity.

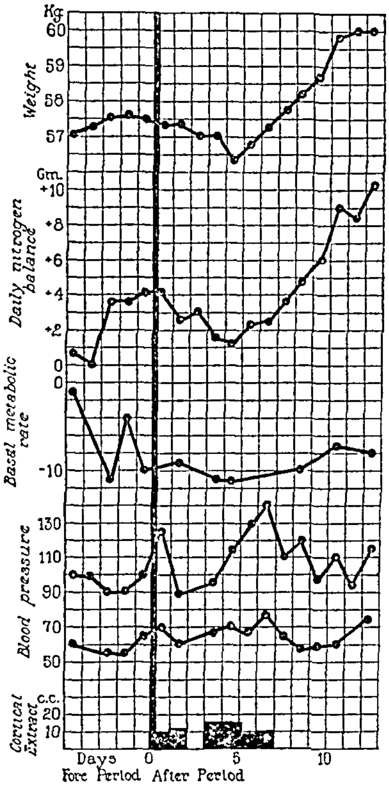

Chart 2.—Changes in weight, nitrogen balance, basal metabolic rate and blood pressure in case 14 (also the fourteenth case in our experience), in consequence of treatment with the cortical hormone.

The effect of treatment on the weight, the nitrogen balance, the basal metabolic rate and the blood pressure in this case[5] are shown in chart 2.

Cases 15, 16, 17, 18, 19 and 20 (respectively the fourth, fifth and seventh cases of our experience, reported before, and the eighteenth, nineteenth and twentieth cases of our experience, not reported before).—These cases were similar to the cases represented in the three reports with which group 5 opens.

An additional case that could be included in this group was treated in London by Dr. Simpson[6] and has been reported by him separately. Because of the limited supply of cortical hormone, these patients have had to depend on the Muirhead treatment or on the administration of suprarenal cortex by mouth for the greater part of the time. When this has not been entirely sufficient, it has been possible to avoid serious disturbances by administration of small amounts (from 30 to 40 cc.) of the cortical hormone at irregular intervals. The efficiency of these patients is low; they have had to curtail their activities, yet they have been able to carry on their ordinary daily life without undue restraint.

THE USE OF CORTICAL HORMONE IN CONDITIONS OTHER THAN ADDISON'S DISEASE

The cortical hormone, besides being used in the treatment of Addison's disease, has been tried in the treatment of an equal number of patients suffering from a variety of diseases. In collaboration with H. S. Plummer, W. A. Plummer and S. F. Haines, four cases of exophthalmic goiter and one case of myxedema have been studied. There was no change in the case of myxedema. Subjective evidence of improvement was reported by two of the four patients with exophthalmic goiter. Objectively there was a less stimulated state, some decrease in the pulse rate, and decrease in the basal metabolic rate from + 60 to + 30 per cent in one case and from + 55 to + 28 per cent in the other. In the other two cases there were no definite changes. From a practical point of view, these results were of no consequence, for it was subsequently necessary to give these patients compound solution of iodine, after which thyroidectomy was performed. The results are of considerable physiologic interest and emphasize the need, pointed out by Marine,[7] for further study of the interrelationship of the activities of the suprarenal and thyroid glands.

Six cases of anorexia nervosa have been studied. There was some increase in appetite or in the ability to take food in two cases. Whether this is of significance remains to be determined. In five cases of asthenia associated with neurasthenia or psychoneurosis, treatment was given with negative results. Likewise, no effect was observed in single cases of myasthenia gravis, diffuse myositis, postural hypotension or benign hypertension. For the most part, the results from the use of this extract in conditions other than Addison's disease have been disappointing. In fact, the apparent specificity of the effect has been such as to suggest that a therapeutic test, with definite response to the cortical hormone, would be of diagnostic value in a case of suspected Addison's disease.

DOSAGE AND METHODS OF ADMINISTRATION OF CORTICAL HORMONE

The dosage and methods of administration of the hormone are of extreme importance in any attempt at specific organotherapy. Swingle and Pfiffner have used as much as 1 cc. for each kilogram of body weight each day for suprarenalectomized cats. As 1 cc. of extract represents 30 Gm. of suprarenal cortex, or the entire supply from two steers, the relative dose in terms of the weight of cortical tissue is enormous. On the other hand, it must be remembered that the amount of active material present in the excised suprarenal responding shift in the nitrogen balance with nitrogen retention, as shown in chart 2.

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[5] The results of the detailed study of the chemical and metabolic changes in Addison's disease and the effect of treatment with the cortical hormone on these changes are being reported separately (Greene, C. H.; Rowntree, L. G.; Swingle, W. W., and Pfiffner, J. J.: Metabolic Studies in Addison's Disease: the Effect of Treatment with the Cortical Hormone of the Suprarenal Gland, Am. J. M. Sc., to be published).

[6] Simpson, S. L.: Addison's Disease Treated by Intravenous Cortical Extract, Proc. Roy. Soc. Med. **24**: 497-498 (Feb.) 1931.

[7] Marine, David: Remarks on the Pathogenesis of Graves' Disease, Am. J. M. Sc. **180**: 767-772 (Dec.) 1930.

Swingle and Pfiffner will be unable to furnish further supplies of cortical hormone of their own manufacture for clinical use or to standardize preparations made commercially. This, then, constitutes a final report on the immediate results obtained with the preparation of the cortical hormone made by Swingle and Pfiffner. The experience of the last year has established beyond question the activity and the clinical usefulness of this preparation in the treatment of patients with Addison's disease. As such, it marks the close of the experimental phase in the clinical use of this preparation. Efforts are being made, by means of the methods of Swingle and Pfiffner, to prepare on a commercial scale an active, standardized preparation of this hormone that will be acceptable to the Council on Pharmacy and Chemistry of the American Medical Association. When this has been done, a new and specific agent of value in organotherapy will have been placed in the hands of physicians.

ABSTRACT OF DISCUSSION

Dr. Roy G. Hoskins, Boston: One fundamental question is where we now stand in the suprarenal problem. By and large the evolution of our knowledge of hormones goes through a somewhat similar course in each instance. First of all, historically, the important thing was the discovery that the suprarenals are necessary to life and that they play an important part in bodily activities. The credit for this goes to a large extent to Addison. That left us with the question, Which part of the suprarenal is essential to life? Much difficult work was required to establish the fact that it is the cortex that is indispensable. The next problem was whether the cortex functions by addition or by subtraction. The weight of opinion for a good many years was that the suprarenal is a detoxicating organ. It was thought to function not by adding anything to the blood stream but by removing something. That problem was answered in favor of addition. The cortex adds something to the blood stream. The next problem was to get this elusive something. Dr. Swingle's share in that he has already modestly referred to. Hope of solution appeared several years ago. Goldzieher and Aub reported promising results. Then Hartman and Rogoff as well as Swingle independently evolved extracts of proved potency. The next problem is the chemical nature of the hormone. The final important step will be its synthesis. May I ask what is the minimal dose that has so far proved efficacious? Second, is the extract effective in hyposuprarenalemia? I am interested in that problem on account of my work in dementia praecox. I find in that psychosis a picture which theoretically could be produced by a fairly high grade of suprarenal deficiency. I have entertained hope that when this hormone became available I might do something significant for these patients. Dementia praecox is a disorder that fills one fifth of all hospital beds in this country. A substance that would be useful in that psychosis would be of tremendous value.

Dr. Clayton W. Greene, Buffalo: Through association with Dr. Hartman in Buffalo, I have had experience in the treatment of suprarenal disease, particularly Addison's disease. At the same time during which Dr. Swingle and Dr. Pfiffner were working, Dr. Hartman was working, and almost simultaneously these two groups have apparently produced similar extracts independently and by somewhat different methods. About a year ago I had under my observation at the Buffalo General Hospital two cases of Addison's disease. First, a man with complete collapse who was given cortical extract and after a short time responded, just as have the cases presented here today. A few days later a woman was admitted in a similar crisis. Comparatively little extract was available and this was divided between them. The first patient suffered a relapse; the second died. Fortunately, more extract soon came through and the man improved. He attained reasonable health and on one or two occasions went home, where he administered the extract to himself. Through reduction of extract or through omitting it, he experienced four relapses, from each of which excepting the last he recovered his former state of reasonable health with the use of the cortical extract which Dr. Hartman calls cortin. The last relapse was fatal because, as has been pointed out, these patients are quite susceptible to infection and this man developed, from a seemingly insignificant coryza, a bronchopneumonia which was found at autopsy. Each of these cases showed at autopsy complete simple atrophy of the cortical tissue, and in neither was active tuberculosis discovered anywhere. Since then we have had several cases under treatment. At present there are three in the hospital, one mild, one severe, and one perhaps in between. The patients have responded very well to the cortin. We have had a total of six patients who have responded well to the extract, excepting the two first mentioned, and there have been three patients using cortin at the Massachusetts General Hospital in Boston. I am sorry that I cannot speak of Dr. Swingle's extract because none has been available for us. Both of these investigators have done an inestimable service in producing something to combat Addison's disease. Our observations, both laboratory and clinical, have been essentially the same as those presented today in the experimental animal by Dr. Swingle and in patients by Dr. Carl Greene.

Dr. W. L. Aycock, Boston: It seems to me that one of the functions of the internal secretions might be that of regulators to keep bodily physiology in tune with a varying environment. This, I think, was shown years ago by the work of Reid Hunt and Sidell and Finger on seasonal variations in the iodine content of the thyroid. It occurred to me that Dr. Swingle might have had an opportunity in the course of his work to determine the amount of cortical extract necessary to keep a suprarenalectomized animal in a normal state of metabolism at different seasons of the year. Would this not give one further indication as to what the function of this particular extract is in the normal body? I should like to ask whether he has noted any seasonal variations in the suprarenalectomized animals. I am interested in this point because it has been noted that certain infectious diseases vary with season and climate in much the same manner as some of the glands of internal secretion, suggesting, I think, the possibility that some abnormality in internal secretion may play a part in susceptibility to certain infectious diseases.

Dr. E. P. McCullagh, Cleveland: My experience in the treatment of Addison's disease with the newer hormones has been extremely limited. Roy McCullagh, my brother, made for us in his laboratory an extract of the suprarenal cortex by the method described by Dr. Swingle. He also made extracts by the method described by Dr. Hartman. He felt from testing the extracts made that the extract made by the Swingle-Pfiffner method was more active. At first there was difficulty in obtaining extracts which were uniformly potent. Some of the extracts seemed to be impotent. We found considerable difficulty in that it takes a great deal of gland to produce a small quantity of the extract, and to test it thoroughly used up practically all the extract we had in each case, so none was left for patients. Finally, however, we made up quite a few samples, put them together in one lot and I have treated just one patient with definite Addison's disease who had pigmentation, low blood pressure, muscular pains, asthenia, nausea and so on. The actual treatment was preceded by ten days of intravenous injection of physiologic solution of sodium chloride without improvement. For ten days this patient then received 10 cc. a day of the cortical hormone and there was definite improvement, with a slight rise in blood pressure. The muscular pains disappeared, strength was greatly increased, and nausea and vomiting disappeared.

Dr. Robert L. Levy, New York: I want to call attention to the effects on blood pressure which have been described, particularly in the clinical cases. Although these patients showed marked symptomatic improvement, the blood pressure remained at a relatively low level. This affords further evidence of the complex mechanisms concerned in the regulation of arterial tension.

Dr. J. J. Pfiffner, Princeton, N. J.: It has been my lot during the last few years to wrestle with the problem of the chemical preparation of this material, and all I can say is that we have obtained an active preparation. I regret, of course, as does every one else, that we do not get a gram of material

5 mg. sample of the bone powder was digested with sulphuric acid and 30 per cent hydrogen peroxide, then nesslerized and compared colorimetrically with a standard nitrogen solution. The percentage of nitrogen multiplied by the factor 6.25 gives the percentage of protein present in the bone powder.

The determination of calcium phosphorus and protein in the membranes was performed in exactly the same manner as is described for the bone. The carbonate determinations, however, were not made, since it was found that the tissue and other sinus material did not produce a measurable amount of carbon dioxide. All analyses were made on individually weighed duplicate samples of the sinus material and checked to within 0.7 per cent as a maximum variation in any single pair of duplicate analyses.

The chemical analyses of the blood were made according to the generally accepted methods: urea by the method of Leiboff,[9] uric acid by the method of Benedict,[10] chlorides by the method of Whitehorn,[11] sugar by the method of Folin and Wu,[12] serum calcium according to the Roe and Kahn method,[3] and serum phosphorus according to Fiske and Subbarow.[4] The urinalyses, blood counts and other qualitative analyses were made in the usual manner.

Without going into any lengthy discussion of the chemical composition of bone, it is sufficient for our purpose to accept the prevailing conception of the chemical composition of bone as being made up of calcium phosphate and calcium carbonate. The formula assigned to the compound present is $3\ Ca_3(PO_4)_2.CaCO_3$. This formula, therefore, places bone in a group of naturally occurring phosphate rocks known as the apatite group of minerals. Not only does chemical analysis of bone seem to substantiate this belief, but roentgenograms of bone and apatite rocks correspond nearly identically.[13] One who examines the formula for bone will note that some of the calcium is combined in the form of calcium carbonate and the remainder as calcium phosphate. Therefore, if the amount of carbonate (determined as carbon dioxide) is found, the amount of calcium as the carbonate can be calculated. This carbonate calcium value when subtracted from the total calcium value leaves the amount of calcium combined with the phosphate. The latter value is known as the "residual calcium" and bears a definite relation to the phosphorus content. From a theoretical standpoint, this ratio is $\frac{\text{Residual calcium} \simeq 1.94}{\text{Phosphorus}}$ in the chemical compound $Ca_3(PO_4)_2$. In a large number of bone analyses, Shear and Kramer found that this ratio was practically a constant value, whether the bone was normal or the result of pathologic calcification. Their mean value for this ratio as found in some hundred or more analyses was approximately 2. In only one case of pathologic calcification did they find a higher ratio (2.23), this being in a calcified fibroid of the uterus. In a later paper, Kramer and Shear[14] show that this higher ratio is obtainable in cases of fresh calcification, as in healing rickets.

Applying this interpretation to the results obtained in this investigation one notes that of the twenty analyses made only five show a distinctly high calcium to phosphorus ratio. According to the interpretation given by Kramer and Shear, this can only mean that fresh calcification is taking place in the sinus bones of those individuals. It is impossible at this time to go further into the probable nature of the calcium involved in evidence of fresh calcification.

If one considers another ratio, that of carbonate calcium to total calcium, one notes that in the compound $3\ Ca_3(PO)_2.CaCO_3$ this ratio should be 1 to 10; e. g., 10.1 per cent. In young bones and in bone showing fresh calcification, Kramer and Shear found ratios of that magnitude, whereas in old bones that ratio was about 15 per cent. All our sinus bone specimens show a ratio less than 10.7, although there is a great variation in the age of the patients. This low ratio, according to Kramer and Shear, indicates a low proportion of calcium carbonate in the diseased sinus bone and also gives indications of primary calcification. Therefore, without going further into the question of the chemical composition of diseased sinus bone, it seems to be evident that there is primary calcification taking place. Further work in this direction is necessary for a more complete understanding of the nature of changes in the sinus disease.

According to Wells,[15] "calcification in normal tissue seldom occurs, except in the formation of bone. Often the infiltrated tissue is completely dead, as in infarcts, organic foreign bodies, caseous areas, and particularly in old inspissated collections of pus. It may be said that any area of dead tissue that is not infected, and that is so large or so situated that it cannot be absorbed, will probably become infiltrated with lime salts." It seemed to us, therefore, that the sinus membrane should show evidences of lime deposit. No evidence of tissue calcification could be detected. From the chemical analyses of the membrane it is evident that no appreciable calcification has taken place, since our values range from 0.77 to 3.31 per cent of calcium, with the phosphorus percentage very low and the carbonate content negligible. If this is contrasted with the results of Kramer and Shear[16] on calcified tissues, one notices a great difference, in that their values for the calcium content ranged from 20 to 32 per cent with correspondingly high amounts of phosphorus and carbonate. Therefore, the only conclusion that can be reached is that there is no appreciable tissue calcification in diseased sinus membranes.

The same can be said of the presence of calcium carbonate and calcium phosphate in the polyps and pus associated with the sinus infection. Our analyses on the dried polyps or pus material showed practically no calcium, phosphate or carbonate. In seventeen operative cases, only five gave a sufficient amount of pus for a chemical examination. This is too few cases on which to base any conclusions. In ten other pus samples obtained by irrigation, it was, of course, impossible to get any quantitative data, since by the process of irrigation the absolute quantity of pus present in the sinus cavity could not be determined. However, certain qualitative tests were made on samples of pus obtained from both sources. The possible presence of potassium thiocyanate in sinus secretion is suggested by Torrigiani,[17] since he found it to be present in many cases of nasal discharges which he examined. When we made the same examination our results were all negative with one exception. In this instance the operative

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Dr. Sidney Israel, Houston, Texas: I agree with Dr. Ersner that since in eighteen cases out of a total of thirty-three there was a high blood serum calcium, one would think that these observations would be significant in sinus diseases. An analysis of these eighteen cases, however, shows that in the most extensive and severe cases the blood serum calcium was relatively low, and in other cases wherein only slight involvement was present it was high. Therefore, in eighteen out of thirty-three cases showing high blood serum calcium, one could not say that these observations would be diagnostic of the presence or significant of the extent of sinus disease, because in the cases with most extensive involvement, in many instances, there was found a low calcium content in the blood serum. Several interesting problems have arisen since this study was undertaken and will form the basis of further report at a later date.

ROENTGENOLOGIC DIAGNOSIS OF APPENDICITIS *

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Roentgenology offers a valuable aid in the diagnosis of appendicitis, and it seems not unwise to emphasize its importance and to stress further certain points already familiar to most roentgenologists.

The early literature is filled with chaotic controversy as to whether visualization or failure to fill constitutes appendical disease, but one finds a woful lack of agreement and failure to establish any authentic signs or sign complex. More recent observers have discussed the important roentgenologic observations, but by many this subject has been unheeded, and the method has failed, we believe, to receive the consideration that it merits.

It is not our intent to enter into a discussion of technical minutiae; however, it may not be unwise to mention a few essentials in the roentgenologic examination. According to our experience, the opaque material should be administered in as fluid a suspension as is possible and at least 12 ounces of the mixture should be ingested. This should be taken approximately eighteen hours before the examination, and no purgatives nor enemas should be permitted during this time. In doubtful cases or in acute conditions in which oral administration is not permissible, the opaque enema may give valuable information; especially have we found this true in cases of suspected abscess, in which the relationship of the mass to the cecum may be established. While statistics vary as to the percentage of appendixes that can be filled, in our series in more than 80 per cent either the entire viscus or some part of it can be visualized. Roentgenograms may furnish a valuable means of keeping permanent records, but the essential feature in this examination is palpation under fluoroscopic control. This palpation should be sufficiently deep to allow satisfactory exploration of the cecal area, the patient being rotated and the position changed in any direction that may be necessary. Muscular relaxation is of the greatest importance. To reiterate, only by palpation under fluoroscopy can the important roentgenologic signs of appendicitis be elicited.

Enumerated in the order of their relative value, the roentgenologic signs are:

1. *Tenderness and Muscular Rigidity.*—This sign is produced by pressure directly over the appendix; it can be elicited only by palpation sufficiently deep to permit satisfactory exploration of the cecum, and it is the most important of all signs in this examination. While pain may be produced by pressure applied at a distance from the appendix, its point of maximum intensity should coincide with the viscus, and this localization must be definite and constant. If the appendix is mobile, the tender point changes with the altered position of the organ.

2. *Fixation of the Appendix.*—The normal appendix is freely movable and can easily be displaced by the palpating hand. When its position cannot be altered, it is indicative of an inflammatory process, either primary or secondary, active or quiescent. If fixation is accompanied by tenderness, unquestionably the process is either acute or subacute. Either the entire length of the viscus may be fixed or the process may be confined to the tip. When the appendix is situated in the pelvis there may be difficulty in separating it from the pelvic viscera; palpation with the patient in the Trendelenburg position will usually overcome this difficulty unless true fixation is present. Occasionally we have found bimanual palpation, one hand on the abdominal wall and one in the posterior culdesac, of material aid in satisfactorily exposing a pelvic cecum.

3. *Pain Referred to the Appendix, Produced by Pressure over Other Parts of the Abdomen.*—This sign is based on the well known clinical principle of referred pain, the visualization and knowledge of the exact position of the appendix rendering it much more accurate.

4. *Abnormal Position of the Appendix.*—While normally situated on the mesial aspect of the cecum, the appendix is found not uncommonly in various other locations, chief among which may be mentioned the retrocecal appendix, the subphrenic appendix as found in an undescended cecum, the left-sided appendix in cases of nonrotation of the cecum, and the appendix that arises in the normal position but lies parallel to the cecum, either on its lateral or on its mesial aspects. Quite obviously, inflammation in an abnormally situated appendix will not produce pain or tenderness over McBurney's point and may simulate disease in other innocent organs. Especially is this true of an appendix located in the upper right quadrant, which may give the classic picture of gallbladder disease, and of the postcecal appendix, which may so closely imitate the symptoms of renal or perinephric disease. In acute inflammatory processes, especially when an abscess is present, a knowledge of the exact position of the appendix is of the greatest aid to the surgeon in selecting the avenue of approach and may prove to be a life-saving measure.

5. *Spasticity of the Cecum.*—Disease conditions of the appendix quite commonly produce a reflex spasm of the cecum, which, when accompanied by other signs, is of diagnostic importance. Quite often the first clue to cecal spasticity is a residue in the terminal ileum at the end of eighteen hours. This, in the absence of stenotic conditions, is most suggestive. Especially is this spasticity suggestive in cases in which the appendix cannot be visualized but in which tenderness is elicited by pressure over the caput coli.

6. *Pain Referred to Other Parts of the Abdomen, Produced or Increased by Pressure over the Appendix.*—That the appendix may occasion pain which is referred to other parts of the abdomen is well known. When this pain is produced by pressure over the visualized appendix or is increased by pressure, it is of

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* From the roentgenologic clinic of Drs. Groover, Christie and Merritt.

* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, *Philadelphia, June 10, 1931.*

tion, by radiation therapy or by any other known method of treatment. The diagnosis of malignancy was established by microscopic examination of tissues in 326 cases, and by roentgen examination or exploratory surgical operation in other cases. A few patients had had apparently complete surgical removal of malignant tumors and had no discoverable metastases but were permitted to receive injections of the extract as a prophylactic measure. The study of such patients could be useful in determining the effect of the extract in the prevention of recurrence only if there should be no recurrence in an unusually large percentage of these patients after continuing use of the extract over a period of several years.

Table 1.—*Duration of Malignant Disease*

	Number of Patients		
	Carcinoma	Sarcoma	Total
Less than one year	141	10	151
One year but less than two years	88	8	96
Two years but less than three years	45	6	51
Three years but less than four years	31	2	33
Four years but less than five years	15	2	17
Five years but less than six years	17	0	17
Six years but less than seven years	9	2	11
Seven years but less than eight years	4	0	4
Eight years but less than nine years	5	0	5
Nine years but less than ten years	5	0	5
Ten to fourteen years	12	1	13
Fifteen to nineteen years	6	1	7
Twenty years or longer	5	0	5
Totals	383	32	415

The method of preparation of the extract of suprarenal cortex substance has been described by Drs. Coffey and Humber in their application for the patent (1,771,976) granted them by the United States government. The extract has not been available to those connected with the foundation for chemical examination, for animal experimentation or for administration to patients.

The extract was injected subcutaneously in doses usually of 12 minims (0.7 cc.) twice weekly, after three or four initial graduated doses. A few patients received larger amounts for a time, usually not exceeding 30 minims (1.9 cc.), and many patients received doses of less than 12 minims, these modified doses being determined by the condition of individual patients.

The physicians of the foundation have made no claim as to the potency of the extract in producing changes in malignant growths. They have assumed and maintained the position of cooperating but independent observers committed only to the finding of facts.

This report includes only those patients who were actually under the observation of the foundation, and does not discuss the much greater number who received injections of the extract at other clinics, nor the patients mentioned in illustrative cases in the published papers of Drs. Coffey and Humber.

Clinical records and autopsy reports were made in duplicate. The Los Angeles Central Coffey-Humber Clinic was furnished a copy of the record in each case. By agreement with the central clinic, few new patients were accepted by the foundation after the middle of October, 1930. A preliminary report covering the first six months of the work of the foundation, during which 398 patients were observed, was prepared, and a copy was sent to Drs. Coffey and Humber, Jan. 2, 1931. In February, 1931, the clinic and hospital were closed by the board of trustees of the W. K. Kellogg Foundation, and patients who were then receiving the suprarenal cortex extract were transferred to other clinics.

In this study, which was made by the foundation, clinical evidence was sought of increased or decreased appetite, of gain or loss in weight, of altered feeling of general well being, of alleviation or increase of pain, and of changes in malignant tumors, both primary and metastatic. In those patients who came to autopsy, necrosis and sloughing of malignant tumors were studied as to occurrence and degree, by observation of tumors and by microscopic examination of tissues. Consideration was given to the effects produced by necrosis and sloughing when such changes occurred.

Among the patients observed, the largest groups were those presenting carcinoma of the breast, of the uterus, of the rectum, and of the stomach, and comprised a total of 258 patients. Only one thirteenth of the total number of patients had sarcoma. At commencement of use of the extract, the average age of the patients with carcinoma was 55.4 years, and the average age of the patients with sarcoma was 44.12 years.

Facts as to sex and age of patients, diagnoses, surgical operations, radiation therapy, experimental injections of the extract, and the duration and termination of the disease were tabulated, and supplemental tabulations were made. Important summaries and conclusions are presented in this paper.

One hundred and seventeen patients had had the disease for three years or longer, 147 had had the disease one or two years, and in 151 cases the disease had been present less than one year (table 1).

Surgical operations, either radical or palliative, had been performed for 255 patients, and 160 had had radiation therapy. One hundred and two patients had had both surgical operation and radiation therapy, 103 patients had had neither operation nor radiation, 153 had had surgical operation without radiation, and 57 had had only radiation therapy.

Drs. Coffey and Humber hold that the extract acts by supplying at regular intervals a principle lacking or deficient in patients with malignant disease. Marked benefits from the experimental injections were not usually expected until after patients had received at least fifteen injections of the extract. Table 2 summarizes the number of experimental injections of the extract received by the patients to the end of the period of observation of these patients by the foundation.

Table 2.—*Number of Injections of the Extract*

Injections	Number of Patients
Less than 15	81
From 15 to 24	83
From 25 to 34	70
From 35 to 44	75
From 45 to 54	40
From 55 to 64	32
From 65 to 74	13
Seventy-five or more	21
Total number of patients	415

A spirit of optimism prevailed generally among the ambulatory patients. Many were enthusiastic in their praise of the benefits they were receiving from use of the extract. However, continued increase in the size of primary growths and of metastases accessible to examination was found to occur even in patients who felt better.

Some patients discontinued taking the injections because they were financially unable to remain longer

Case 171.—Mrs. A. A., with carcinoma of the uterus, who had had apparently complete surgical removal of the tumor and now had a so-called prophylactic case, weighed 148¼ pounds at the first weighing and gained 8½ pounds in eighty days.

Case 195.—Mrs. M. L., with carcinoma of the ovaries, who had had bilateral oophorectomy and now had a so-called prophylactic case, weighed 123 pounds at the first weighing and gained 5 pounds in 118 days.

Case 197.—Mrs. M. G. (deceased), with carcinoma of the right ovary, who weighed 102 pounds at the first weighing, one month after right oophorectomy, gained 6½ pounds in eleven days.

Case 217.—Mr. D. J. C., with carcinoma of the prostate, who weighed 140½ pounds at the first weighing, gained 5½ pounds in eleven days. No change in the prostate had been noted on examination during the preceding two years.

Case 225.—Mr. A. W., with carcinoma of the bladder, who had had partial cystectomy, June 10, 1930, when his weight was 185 pounds, had lost in weight to 173 pounds at the first weighing. He then gained in weight up to 196 pounds by December 31, the *modifying factor being apparently complete* surgical relief of the condition.

Case 236.—Mrs. M. S. (deceased), with carcinoma of the sebaceous glands over the right mastoid and the adjacent area, who had had palliative surgical removal of a large tumor mass, July 2, 1930, weighed 130¼ pounds at the first weighing, three weeks after operation, and gained 10¼ pounds in ninety-one days, 9¾ pounds being gained in the first thirty-five days.

Case 238.—Mrs. F. M. T., with basal-cell carcinoma of the *right pinna and the adjacent area*, was *in good general health*, weighed 163¾ pounds at the first weighing and gained 5¼ pounds in 157 days.

Case 298.—Mr. J. R. M., with carcinoma of the stomach, who had had a partial gastrectomy followed by radiation therapy, constituting a so-called prophylactic case, weighed 138 pounds at the first weighing and gained 5½ pounds in forty-nine days.

Case 302.—Mrs. E. D. (deceased), with carcinoma of the stomach, weighed *71½ pounds at the first weighing and gained* 7½ pounds in thirty-five days, the modifying factors being bilateral pleural effusion, ascites and edema of both lower extremities.

Case 311.—Mr. A. E. S., with carcinoma of the stomach, who had had a palliative posterior gastrojejunostomy, weighed 117¼ pounds at the first weighing and gained 20¼ pounds in eighty-five days, the modifying factor being surgical relief of pyloric obstruction.

Case 329.—Mr. R. G. (deceased), with carcinoma of the liver, who weighed 85 pounds at the first weighing just after exploratory surgical operation, gained 12 pounds in five days, the modifying factor being ascites.

Case 336.—Mr. C. H. A., with carcinoma of the rectum for five years, who weighed 138¼ pounds at the first weighing, gained 11¼ pounds in 154 days.

Case 348.—Mr. J. H., with carcinoma of the rectum, who weighed 153½ pounds at the first weighing, gained 8¾ pounds in 165 days.

Case 349.—Mrs. I. M., with nonobstructive recurrence after resection of the rectum, who weighed 101½ pounds at the first weighing, gained 6 pounds in 142 days.

Case 381.—Mr. E. T. (deceased), with carcinoma of the lung, weighed 147¼ pounds at the first weighing and gained 5¼ pounds in twenty-two days, the modifying factors being pleural effusion, ascites and edema of both lower extremities.

Case 388.—Mr. J. B., with lymphosarcoma of the left groin, weighed 150½ pounds at the first weighing and gained 6 pounds in 144 days, the modifying factor being edema of the lower extremities.

Case 389.—Mr. H. E. C., who had had surgical removal of spindle-cell sarcoma of the left thigh, not involving the bone, weighed 111½ pounds at the first weighing and gained 6½ pounds in 168 days.

In addition to the aforementioned twenty-eight patients who gained 5 or more pounds over the period of weight observation, there were six patients who made temporary gains of 5 or more pounds. In one of these, who gained the most, there were bilateral pleural *effusion, ascites, and edema of both lower extremities.* In one there was ascites. Of these six patients, five are known to have died.

Laboratory reports for hospital patients who were receiving the suprarenal cortex extract were tabulated, and the following statements in regard to the observations may be of interest:

Table 4.—*Known Deaths in Each Calendar Month*

June, 1930, to July, 1931													
June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
15	27	36	35	30	27	19	19	18	12	6	16	3	1

The average hemoglobin percentage (Dare) for ninety-eight patients was 62, the lowest hemoglobin percentage at any time determined for each patient being used. The hemoglobin was below 40 in twelve cases, between 41 and 60 in thirty-one cases, between 61 and 80 in forty-three cases, and above 80 in twelve cases.

The average erythrocyte count on admission for 100 hospital patients was 3,740,000, and the average leukocyte count on admission for 99 patients was 11,900. The first erythrocyte count was below 2 million in two cases, between 2 and 3 million in twenty-two cases, between 3 and 4 million in twenty-five cases, and above 4 million in fifty-one cases. The first leukocyte count did not exceed 10,000 in fifty cases and was above 10,000 in forty-nine cases.

The average coagulation time of the blood for eighty-six hospital patients was five minutes, the coagulation *time being prolonged beyond six minutes in thirteen* cases.

Blood sugar determinations were made for seventy-five hospital patients, the average being 95.7 mg. of sugar per hundred cubic centimeters of blood, the highest reading for each patient being used. The blood sugar was normal in sixty cases, below 80 mg. in ten cases, and above 120 mg. in five cases.

Table 5.—*Age Distribution of Deceased Patients and Survivors*

Group by Age in Years	Original Number in Each Group	Deaths in Each Group	Patients Remaining
Less than 15	1	1	0
15 to 19	5	5	0
20 to 24	1	1	0
25 to 29	8	7	1
30 to 34	12	5	7
35 to 39	29	19	10
40 to 44	35	22	13
45 to 49	50	29	21
50 to 54	67	46	21
55 to 59	47	29	18
60 to 64	54	36	18
65 to 69	49	28	21
70 to 74	39	26	13
75 to 79	13	7	6
80 to 89	5	3	2
Totals	415	264	151

The basal metabolic rate for sixty-two hospital patients was determined by use of the McKesson metabolator. The basal metabolic rate was normal in twenty-four cases, below — 10 in seven cases, and in the thirty-one cases in which the rate was above + 10 the average rate was + 33.

tract. A small number of the patients died of causes apparently independent of the malignant process, such as cerebral hemorrhage, endocarditis and bronchopneumonia.

Autopsies were performed by Dr. Howard A. Ball and cooperating pathologists in the cases of eighty-one deceased patients who had received injections of suprarenal cortex extract at the foundation clinic or hospital, the examinations being made in most cases before embalming and within nine hours after death.

Table 8.—*Distribution of Deceased Patients by Interval from First Injection to Date of Death*

Time Interval in Days	Number of Deceased Patients
Less than 50	41
From 51 to 100	35
From 101 to 150	46
From 151 to 200	55
From 201 to 250	27
From 251 to 300	21
From 301 to 350	14
More than 350	22
Total	264

Sections of primary and metastatic tumors in these cases were made from frozen blocks of tissue and were stained and permanently mounted for study of necrosis or absence of necrosis in these tumors. Microscopic examinations were made by Dr. Howard A. Ball, and the work was reviewed by Dr. Newton Evans, scientific director of the foundation and pathologist of the Los Angeles County General Hospital. At the time of closing the clinic and hospital of the foundation, all the blocks of tissue from which sections had been made up to that time for the study of necrosis of malignant tumors and metastatic nodules were delivered to the central clinic for such further investigation as might be desired.

Records and microscopic slides from autopsies performed by Dr. Ball in twenty-seven cases of malignant tumor in which injections of the Coffey-Humber extract had not been given were used by him for comparison in the study of necrosis found at autopsy in patients who had received injections of the extract. These control cases represented the ordinary developments and outcome in cases treated by the usual methods and were comparable with the cases in which experimental injections of the extract had been given, as well as previous treatment by the usual methods.

Among the patients of the control series there occurred carcinoma of the stomach, of the breast, of the uterus, of the rectum, of the colon, of the ovary, of the prostate, of the gallbladder and of the liver, squamous-cell carcinoma other than that of the cervix uteri, sarcoma of the soft tissues of the neck, mesenteric lymphosarcoma, large round-cell sarcoma and malignant myoma of the uterus.

Necrosis and sloughing were frequently observed at autopsy in patients who had received injections of the extract, but there was no relation between the degree of these processes and the number of injections or amount of the extract previously administered. Any microscopic picture present in the series of patients who received the extract injections could be duplicated from similar cases in which no extract had been administered. No necrotic tumor nodule was found which did not contain many viable malignant cells. There was no essential difference in the occurrence of necrobiosis as observed microscopically in the cases in which the extract had been administered and in the cases in which no extract had been given, nuclear fragmentation and what might be termed "replacement fibrosis" being used as criteria.

The necrosis and sloughing of malignant tumors observed in those who were receiving the experimental injections of the extract were in practically all cases no greater in degree than the necrosis and sloughing which have been previously observed by us or by others in similar patients who received no extract injections. In no tumor, primary or metastatic, observed grossly or studied microscopically, was there complete eradication of the tumor by necrosis or sloughing.

The necrosis of malignant tissues in those who received injections of the extract could not be differentiated from that occurring naturally in malignant tumors. The necrosis which was found in patients receiving the extract was in our opinion due to the causes of necrosis generally recognized by pathologists, such for example as embolism, thrombosis, infarction, suppuration and cutting off of the lymph and blood supply of tumors by dense growth at the periphery. Those in whom necrosis was observed in some tumors had other tumors which did not show any such change. Nothing was observed clinically or at autopsy to indicate that the suprarenal cortex extract had any selective influence on the growth or necrosis or sloughing of malignant tumors of the patients of this series.

The average age of the eighty-one patients who came to autopsy was 54.8 years. No significant relation was discovered between the age of the patients and the degree of necrosis of malignant tumors.

The average known duration of the disease prior to beginning the use of the extract for these patients was 1.86 years, and the average interval of time between the first injection of the extract and the date of death was 121 days, or four months.

The average number of injections of the extract for the eighty-one patients was 27.4 and the average degree of necrosis 1.9 on a scale of grading of softening and necrosis from 0 to + + + +. No necrosis was found in twenty cases. In twelve cases there was 3 + necrosis and in fifteen cases there was 4 + necrosis (table 9).

Table 9.—*Grouping of Autopsy Cases of Kellogg Foundation According to Number of Injections and Degree of Necrosis*

Degree of Necrosis	Groups by Number of Injections										Totals
	1-8	9-16	17-24	25-32	33-40	41-48	49-56	57-64	65-72	73-102	
0	3	3	6	2	3	1	0	0	2	0	20
+	3	1	2	1	1	1	0	1	0	0	10
++	3	3	6	1	3	1	3	2	0	2	24
+++	2	2	1	2	3	1	0	0	0	1	12
++++	6	1	0	1	2	2	2	0	1	0	15
Totals	17	10	15	7	12	6	5	3	3	3	81

Among the patients who came to autopsy, hydrothorax occurred seventeen times, hemothorax once, empyema of the pleura twice, ascites nine times, and edema of the extremities twelve times. Peritonitis was found in six cases, nephritis in sixteen cases, pyonephrosis in one case, pyelonephritis in ten cases, hydronephrosis in seven cases, purulent bronchitis in four cases, bronchopneumonia in twenty cases, lobar pneumonia in one case.

Softening and liquefaction of the malignant tumors in the patients observed, we believe, favored dissemina-

Case 2.—A man, aged 26, a Negro, receiving arsphenamine for syphilis, developed vomiting and coincidental generalized pruritus, so severe that it prevented sleep. These symptoms increased in severity until his admission to the hospital four weeks later, in January, 1931. A fortnight before admission icterus and drowsiness set in. The liver and spleen were found to be enlarged. The laboratory examination revealed: a normal hematologic condition, an icterus index varying between 55 and 70, a prompt positive van den Bergh reaction, 2.5 mg of bilirubin per hundred cubic centimeters of blood; cholesterol, 290 mg.; urea, 16 mg.; blood sugar, 75 mg.; amino-acid nitrogen, 7.2 mg.; a negative blood Wassermann test; Kahn test, 2 plus. The urine contained bile and bilirubin in increased amounts.

Oral doses of 0.001 Gm. of ergotamine were administered three times a day for three days. Definite improvement in the intensity of itching was noted after the third dose. Sleep was no longer disturbed. After the third day the pruritus ceased, never to recur.

The toxic degeneration of the liver following arsphenamine therapy subsided in six weeks, when the patient left the hospital well.

Case 3.—A man, aged 46, entered the hospital in June, 1930, with a history of weakness and palpitation for two months, epistaxis for three weeks, and gross hematuria for one week before admission. For a month he had suffered continuous itching, day and night. The physical examination showed scratch marks over the entire body, with scattered small furuncles due to infection of the scratch marks. Large irregular masses were palpable in both flanks. Laboratory examination revealed: severe anemia, with hemoglobin 44 per cent; red blood cells, 1,190,000; fixation of urinary specific gravity at 1.008, and albuminuria. Blood urea varied between 114 and 82 mg. per hundred cubic centimeters of blood; blood calcium between 6.9 and 6.4. The blood pressure varied between 190 and 158 systolic and 96 and 88 diastolic.

Ergotamine in oral doses of 0.001 Gm. was administered three times a day for six days. On the first day amelioration of the intensity of itching was noted one hour following the evening dose. On the second and third days more definite remission of the itching was noted. Subsequently, under treatment, the itching completely abated, not recurring after discontinuation of the drug.

The clinical diagnosis was bilateral polycystic kidneys with azotemia. The patient left the hospital, his renal condition unchanged, seven weeks after admission.

Case 4.—A woman, aged 48, with a five year history of renal disease, entered the hospital in June, 1931, with complaints of weakness, polyuria, and vomiting of five weeks' duration. While in the hospital she developed generalized itching which caused sleeplessness. The clinical observations were mitral stenosis and uremia. The blood pressure was not elevated, reading 120 systolic and 70 diastolic. Laboratory examination revealed: severe anemia, with hemoglobin 44 per cent; red blood cells, 2,600,000; urinary fixation of specific gravity at 1.008, and albuminuria, blood urea varying between 56 and 75 mg. per hundred cubic centimeters of blood; blood calcium, 8.1 mg.

Ergotamine tartrate was administered orally in 0.001 Gm. doses three times a day for four days, with slight relief following the second dose and complete relief after four days' trial. The uremia remained unrelieved. The itching did not recur, despite discontinuance of the medication.

The patient failed to recover from the uremia and died suddenly one month after admission in an attack of coronary thrombosis.

COMMENT

The prompt relief from this distressing symptom following the oral administration of minute doses of the drug cannot be attributed to metabolic changes. The basic disorder remains unaffected by the medication. Regardless of the exact nature of the original disturbing factors, which are undoubtedly different, in azotemia and in icterus, the drug acts by depressing the sympathetic nervous system. According to Youmans and Trimble,[5] exhibition of the effects of ergotamine on various parts of the sympathetic nervous system implies the existence of heightened tonus of that system, as normal individuals under basal conditions in whom this system is presumably inoperative do not manifest certain actions of this drug. The diminished sensitivity of the vegetative nervous system persisted indefinitely in my cases, there being no recurrence of the itching.

The absence of parallelism between the incidence and the severity of the pruritus in cases of jaundice and azotemia and chemical observations is best explained on the basis of individual variability in sympathetic nervous system tonus.

The drug is best discontinued as soon as relief is obtained. Prolonged use of the drug is attended by dangers of ergotism. In the presence of severe liver disease the question of the possible hepatotoxic action of the drug naturally arises. In this connection Bauer and Wozasek[6] have noted a decreased alimentary galactosuria in a normal individual and in patients with liver disease under the influence of ergotamine and have stated that they have observed improved liver function after its use.

SUMMARY

1. Ergotamine tartrate in oral doses of 0.001 Gm. is a useful antipruritic in hepatic and renal disease.

2. Pruritus of hepatic and renal origin is therefore probably the result of increased irritability of the sympathetic nervous system.

A CASE OF RESPIRATORY PARALYSIS IN POLIOMYELITIS SUCCESSFULLY TREATED IN A RESPIRATOR

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This case report is presented for two reasons: First, it describes, as far as we know, the third case of recovery from the respiratory paralysis of poliomyelitis by treatment in a Drinker respirator.[1] Second, many problems and details of the management of such a case are new and a record of them may assist in the management of future cases.

REPORT OF CASE

F. McG., a woman, aged 25, a senior student nurse at St. Luke's Hospital, reported ill, Sept. 9, 1930. The previous day she had developed a slightly sore throat and complained of pain in the back of the neck, which had later shifted to the right thoracic region. There was cough, painful respiration and a chilly sensation with a temperature of 103.6 F. Respirations were 24, and there were fine, bronchial râles throughout, most marked at the right base, where there was a slight pleural rub. The following day she had a chill, had a temperature of 101 F., and vomited. The white blood count was 9,400.

The third day, severe headaches developed. The right lung was clear, but the left was full of medium râles. A roentgen examination showed the diaphragm elevated on the right. Vomiting was projectile at times, and the patient moved in bed with difficulty. Respirations were 40; the pulse was 90 and the temperature 101. In the evening a neurologic consultation was requested. We found engorged retinal veins, stiff neck, slight left central facial paresis, absent abdominal reflexes, absent knee jerks, active achilles jerks, and normal plantar responses. There was extreme weakness of all leg muscle groups, except the flexors of the right foot and the gastrocnemii. A diagnosis of poliomyelitis was made, and lumbar puncture was done. Twenty-five cubic centimeters of faintly opalescent fluid was removed under slightly increased pressure. The cell count was 295 with 60 per cent lymphocytes and 40 per cent polymorphonuclears. As no convalescent serum was available, 9 cc. of normal human serum was injected into the subarachnoid space. Some respiratory difficulty followed during the night.

On the morning of the fourth day, the achilles jerk was absent on the left and just obtainable on the right. Some weak-

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[5] Youmans, J. B., and Trimble, W. H.: Experimental and Clinical Studies of Ergotamine, Arch. Int. Med. **47**: 612 (April) 1931.

[6] Bauer, R., and Wozasek, O.: Ueber den Einfluss von Ergotamin und Leberdiät auf die Leberfunktion, Wien. klin. Wchnschr. **43**: 1337 (Oct. 30) 1930.

[1] First case, Shambaugh, G. E., Jr.; Harrison, W. G., Jr., and Farrell, J. I.: Treatment of the Respiratory Paralysis of Poliomyelitis in a Respiratory Chamber, J. A. M. A. **94**: 1371-1373 (May 3) 1930. Second case, Drinker, Philip; Shaughnessy, T. S., and Murphy, D. P.: The Drinker Respirator, ibid. **95**: 1249-1253 (Oct. 25) 1930.

Council on Physical Therapy

The Council on Physical Therapy of the American Medical Association has authorized publication of the following report.

H. A. Carter, Secretary.

HEALTH BUILDER NOT ACCEPTABLE

The Health Builder, manufactured by the Sanitarium Equipment Company, Battle Creek, Mich., is claimed to be a "mechanical means for administering massage and vibratory exercise."

The Health Builder consists essentially of an electric motor driving an oscillating mechanism which transmits a vibratory motion by means of a belt, or applicator, to the user.

In a pamphlet entitled "Keeping Fit in Fifteen Minutes a Day," copies of which have been distributed freely by the manufacturer at conventions, among others appear the following objectionable claims for the device:

> Typical "patent medicine" testimonials headed "Wonderful for Constipation," "Great for Reducing Weight," and "Health Authority Endorses It."
>
> *On another page:* "Promotes growth of the hair by stimulating the blood circulation of the scalp."
>
> *On the following page:* "In cases of paralysis of the arms, simply wrapping the narrow applicator around the arm throws all the muscles into a vigorous exercise, and gives a massage to the deep muscles that cannot be duplicated with the human hand"
>
> Again in another passage: "The Wide Applicator is used and will be a very good kidney and liver stimulant, and also very effective in rheumatism, constipation, *hemorrhoids*",
>
> *and "Especially indicated in cases* of round shoulders."
>
> From a further paragraph: "This is a treatment that *will be* very beneficial in the treatment of coughs, colds, or *any bronchial or asthma* trouble."
>
> Again: "Excellent in paralysis, cold feet and for relief of pain in the lower leg due to prolonged standing."

The firm has not submitted scientific evidence supporting these claims. Further, an investigation of mechanical exercisers, conducted by a special committee of the Council on Physical Therapy, brought forth no evidence which would justify or substantiate the claims quoted.

The Council on Physical Therapy condemns the sale of mechanical exercisers to the public for the following reasons:

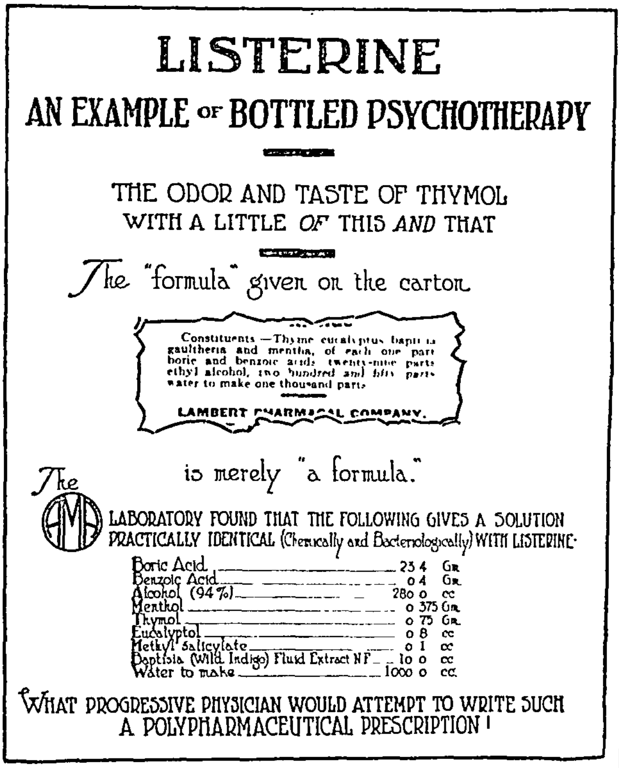
1. Volitional effort is not encouraged.
2. The same results could be accomplished without an apparatus.
3. Treating only one part does not give any of the advantages of general exercise.
4. The use of such apparatus is *monotonous and the patient loses* interest in treatment.
5. The effect is that of mechanical massage and lacks the physiologic benefits of exercise.

The Council on Physical Therapy of the American Medical Association declares the Health Builder unacceptable for inclusion in its list of accepted devices for physical therapy because:

Rule 5. The firm advertises claims that are misleading, exaggerated or unwarranted.

Rule 6. *The firm's advertising and descriptive matter fails to give* adequate warning of the dangers associated with its use.

Rule 8. The firm uses an objectionable name for the apparatus.



LISTERINE

AN EXAMPLE OF BOTTLED PSYCHOTHERAPY

THE ODOR AND TASTE OF THYMOL WITH A LITTLE *OF* THIS *AND* THAT

The "formula" given on the carton

Constituents —Thyme eucalyptus baptisia gaultheria and mentha, of each one part boric and benzoic acids twenty-nine parts ethyl alcohol, two hundred and fifty parts water to make one thousand parts

LAMBERT PHARMACAL COMPANY.

The is merely "a formula."

AMA LABORATORY FOUND THAT THE FOLLOWING GIVES A SOLUTION PRACTICALLY IDENTICAL (Chemically and Bacteriologically) WITH LISTERINE·

Boric Acid	23 4	Gr.
Benzoic Acid	0 4	Gr.
Alcohol (94%)	280 0	cc
Menthol	0 375	Gr.
Thymol	0 75	Gr.
Eucalyptol	0 8	cc
Methyl salicylate	0 1	cc
Baptisia (Wild Indigo) Fluid Extract N F	10 0	cc
Water to make	1000 0	cc.

WHAT PROGRESSIVE PHYSICIAN WOULD ATTEMPT TO WRITE SUCH A POLYPHARMACEUTICAL PRESCRIPTION!

This illustration and the illustration on the opposite page are reduced reproductions of two of the posters shown in the A. M. A. Chemical Laboratory exhibit at the Eighty-Second Annual Session of the American Medical Association at Philadelphia in June, 1931. *Ascertaining the truth about the composition of patent and proprietary remedies and telling it through* The Journal, the Council on Pharmacy and Chemistry or the Bureau of Investigation is a very important function of the Laboratory. These posters portray one of the recent undertakings of the Laboratory.

Committee on Foods

The following products have been accepted as conforming to the rules of the Committee on Foods of the American Medical Association. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

JOLLY TIME HULLESS POPCORN

(Guaranteed to Pop)

Manufacturer.—American Popcorn Company, Sioux City, Iowa.

Description.—Canned popcorn kernels with a proper moisture content for good popping.

Manufacture.—To assure the quality of the product, popcorn seed of northwestern Iowa is selected from each year's crop; the raising and curing of the corn is supervised and the preparation of the popcorn kernels for final packing carefully controlled.

The seed popcorn is distributed to experienced growers who contract to raise the crop. The popcorn for popping purposes is harvested after the first killing frost. The husk is left on the ear to prevent damage during "curing." The moisture content approximates 20 per cent. Foreign material is removed by air blast, and rotted or imperfect ears are sorted out. The sorted corn is stored in specially constructed wire lined cribs with air passages until the moisture content of the ears is reduced to the requirements of subsequent processing as shown by laboratory tests for moisture and popping volume. At this time the corn is again sorted on belts to remove ears damaged during the drying, is conveyed for from seven to ten days through air currents circulated by fans, and dried to approximately 12 per cent moisture content, that producing maximum popping volume.

The dried ears are sorted, and shelled in "shellers" constructed so as not to injure the bran layers, which, if cracked, would destroy the popping quality. The shelled popcorn is separated from the cobs and chaff by air blast and separating machines, is graded as to size, and is automatically packed in tin cans, which assure constant moisture content and permanent popping quality.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	11.4
Ash	1.4
Fat (ether extract)	3.9
Protein (N × 6.25)	11.0
Crude fiber	2.4
Carbohydrates (by difference) other than crude fiber	69.9

Calories.—3.59 per gram; 102.0 per ounce.

Claims of Manufacturer.—A good quality popcorn, guaranteed to pop after years of storage.

THE JOURNAL OF THE
AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street - - - Chicago, Ill.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

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SATURDAY, NOVEMBER 14, 1931

HUMANITY IN THE HOSPITAL

The address by Dr. Joseph Brennemann on "The Human Side of the Hospital," printed elsewhere in this issue of The Journal,[1] merits more than cursory consideration. Many a medical leader has emphasized the fact that increasing science in the practice of medicine has tended to interfere considerably with its appreciation of the human equation. Indeed, the chief reason for opposition to the mechanization of medical practice has been the realization by physicians that overstandardization interferes with the care of the patient as an individual human being and tends to consider him as a composite of degenerated organs and disordered systems.

Many a hospital board has been disturbed by the apparent loss of good will on the part of the community that it serves without realizing that its employees at the door have apparently never heard of the idea of service. Many a patient and many a relative of patients have been antagonized by an insolent attendant at the desk or a discourteous employee at the telephone. The hospital that employs an uneducated clerk or the disabled parasite of some member of the board to meet its incoming guests makes an error of technic that is certain to be reflected on the balance sheet.

Rigid routine takes little account of variations in human temperament or personal disabilities. The hospital that is governed by unvarying routine is, therefore, not a hospitable hospital. It is taking care of robots and not of human beings. The routine that demands the awakening of all patients at 5:45 in the morning, regardless of their need for rest, is a perfect example of the dangers inherent in the militaristic system. Dr. Brennemann's citation of this particular point will be sympathetically reechoed by every person who has suffered under its enforcement.

The present period is one of education. Leaders have realized that much more can be accomplished through education and by taking the patient into confidence than can possibly be achieved by dictatorial methods. The scientific atmosphere is strange to the uninformed mind. In a recent conference on hospital service, the superintendent of a Pennsylvania institution displayed a group of pamphlets circulated by his hospital to the community, explaining to the uninformed the reasons for extra charges for the use of the operating room, for laboratory service and for similar extras on the patient's bill. Reasoning human beings seldom protest when they are informed. The solution to the hospital's problem would seem to be the development of some form of publicity that would enable the average man to know the why and wherefore of modern medical and hospital methods. Large institutions and large corporations employ specially trained individuals for this purpose. Hospitals might be able to find among their employees some one who could undertake a similar service, particularly for them.

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[1] Miscellany, page 1487.

VENTILATION

In 1913, the governor of the state of New York appointed a state commission on ventilation, which published its report in 1923. At that time, a reorganization of the state government failed to provide for a continuance of the commission. It was then reconstituted on the invitation of the Milbank Memorial Fund as the New York Commission on Ventilation. This commission began its work in 1926, and its final report has just become available.[1] The report is of great significance since it indicates that many municipalities and states are now attempting to conform to obsolete regulations requiring the installation and maintenance in school buildings of systems of mechanical ventilation which have been shown to be not only unnecessary but perhaps even a menace to health. Twenty states[2] require that there be an air supply of 30 cubic feet per minute for each person, a condition that can be obtained only by mechanical ventilation involving the use of fans. Such systems are not only costly but may produce drafts and overheating.

The point of view regarding ventilation has changed during the past generation. It was thought at first that the only bad air was that which contained more carbon dioxide than it ought to, and less oxygen than outside air. The modern point of view is that ventilation is required primarily to remove excess heat given off by the human body, and thus to maintain a comfortable atmosphere. Except where air contains poisons or dust due to imperfect combustion or industrial processes, the problem of ventilation is a physical rather than a chemical problem. Moreover, in small rooms or in large auditoriums containing many people, the air may become tion of the temperature of the skin over different parts of the body, even in normal children, the temperature of the trunk being highest, the face next and the extremities lowest. The temperature of the feet tends to be lower than the temperature of the hands. Surrounding temperature has a definite effect on the temperature of the skin of the body even when the child is clothed. The cooler the room is, the lower the temperature of the skin. There is also a seasonal effect on the temperature of the skin. Noteworthy is the rapid loss of heat from the surface of the body on exposure. This affects the face least, the body next and the extremities most. There is a greater variation in the reaction of the extremities to different surrounding temperatures than in other parts of the body. This suggests that the extremities act as safety valves for the conservation or the elimination of heat.

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[1] School Ventilation: Final Contribution of the New York Commission on Ventilation, C.-E. A. Winslow, chairman, Rufus Cole, Dwight D. Kimball, Frederic S. Lee, George T. Palmer, Earle B. Phelps and Edward Lee Thorndike; Bureau of Publications, Teachers College, Columbia University, New York City, 1931.

[2] The twenty states that still retain regulations concerning ventilating devices based on obsolete notions are Florida, Idaho, Illinois, Indiana, Maine, Massachusetts, Michigan, Montana, New Jersey, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Utah, Vermont, West Virginia and Wisconsin.

These facts cannot fail to have some bearing on the choice and adjustment of clothing—a subject that has heretofore been considered less enthusiastically from physiologic points of view than otherwise. Talbot found that in normal children the natural choice of clothing considered comfortable for everyday life usually compensates for temperature changes in the environment. Premature infants have long been known to require special consideration. As Talbot remarks, the fact that it is commonly necessary to supply external heat to maintain the body temperature of the new-born infant at the normal level is evidence that the heat-regulating apparatus is usually not fully developed at birth and is almost completely absent in the premature infant. The mechanism that maintains the body temperature at a uniform level must develop rapidly, for it appears to reach full efficiency in early childhood and possibly in infancy. In the premature infants, however, Talbot has supplied further evidence that the heat-regulating apparatus is not developed. The temperature of the skin of the premature infant, as well as that of the body, is affected directly by the surrounding temperature and to a greater degree than it is in normal babies. According to Talbot, among the factors that favor lowering of the body temperature in the prematurely born infant are the relatively great area of the heat-eliminating surface, i. e., the skin, as compared with body weight, the normal lack of subcutaneous fat, which prevents escape of heat from the more vital tissues of the body, the normally low production of heat by the organism itself, and the failure to increase this production by shivering, crying and other forms of exercise when the environmental temperature falls below that optimal for the child. Adequate protection against a rise in body temperature is also lacking in these "unfinished" children. When for some reason the heat production in the body increases, or when the environmental temperature is above the optimal level, there is no corresponding increase in the elimination of excess heat. The sweat glands do not function as efficiently as they do in the fully developed or "mature" new-born infant, and sometimes they do not act at all. All the newer scientific observations justify the long exercised clinical precautions directed toward careful maintenance of the body temperature of the new-born and the prematurely born infant.

Current Comment

THE A. M. A. CHEMICAL LABORATORY—TWENTY-FIVE YEARS

In 1906 the Board of Trustees directed the creation of a chemical laboratory in the headquarters of the American Medical Association. The chief function of the Laboratory was and is to aid the Council on Pharmacy and Chemistry in its consideration of proprietary products. In 1906 deceit was rampant; false formulas and improbable chemical statements were not uncommon. The Laboratory provided physicians with accurate scientific information. Today there is much less of such gross deception; the work of the Laboratory is devoted largely to the purely constructive work of standardizing or examining new remedies, most of them of complex composition. Shortly after its creation, the Laboratory broadened its activities to include examination of nostrums. The results have been published in the columns of The Journal first known as "Propaganda for Reform" but more recently as "Bureau of Investigation." Each year a limited number of original investigations are undertaken on topics which may aid in improving materia medica. At its inception the Chemical Laboratory employed only one chemist and an assistant—today it has four chemists, including the director (all Ph.D.'s), and an assistant, besides adequate secretarial and stenographic help. The congratulations of the medical profession are here tendered the Chemical Laboratory, which for a quarter of a century has served both physicians and the public for the advancement of medical science and the public health.

NOBEL PRIZE AWARDED TO WARBURG

The 1931 Nobel prize in medicine has been awarded to Prof. Otto Warburg, director of the Kaiser Wilhelm Institute for Cell Physiology at Berlin-Dahlem. Professor Warburg, born in 1883, the son of an eminent German physicist, trained in chemistry under Emil Fischer and in medicine at Heidelberg, has devoted practically his entire career in research to the study of biologic oxidations. Except for a period of interruption during the World War, his publications on this subject have been continuous since 1908 and cover almost all phases of the field. His theories have been based at all times on experiments, some of them most ingenious, and experimentally difficult, embracing knowledge gained in the disciplines of physics, chemistry and biology. These studies have in large measure centered around the fundamental hypothesis that cell oxidations occur through the catalytic agency of iron in complex organic combination. In the course of his work he has demonstrated the accelerating effect of iron on physiologic oxidations and has artificially pre-

CONNECTICUT

Medical Society Donates Services for Unemployment Relief.—At a special meeting, November 2, of the Manchester Medical Association, which includes all the physicians in town, a resolution was adopted which provided that professional services would be given free to all those receiving aid from the town charities or relief committee. Each physician will be taken in rotation and answer house or office visits accordingly. An identification card to be presented to the physician called will be given to those expecting aid. The resolution further provides that the physicians donate to the relief committee the money set aside by the town for the medical care of the poor, a sum of $700, which will be used in other ways than for medical service. A committee of three physicians has been appointed to cooperate with the relief and town authorities. This method of relief will continue as long as the present relief committee is functioning.

DISTRICT OF COLUMBIA

Personal.—Dr. Leslie T. Gager, clinical associate in medicine at George Washington University Medical School, has been appointed professor and head of the department of medicine at Howard University School of Medicine.

Dr. Park Gives First Davidson Lecture.—The initial Davidson Lecture of the Medical Society of the District of Columbia will be given, November 18, by Dr. William H. Park, professor of bacteriology and hygiene, University and Bellevue Medical College, New York, on "Antipoliomyelitis Serum in Horses and Human Beings and Its Use in the Prevention and Treatment of Poliomyelitis." This lecture was established, May 1, 1929, in honor of Dr. Edward Young Davidson, who, when he was president of the society in 1916, "conceived and led to completion the movement" which provided the society's present building. In accordance with the resolution that provides for the establishment of the lecture and the preparation of a tablet in its commemoration, a tablet will be unveiled on the same day in the library of the society's building. Dr. William Gerry Morgan, formerly president of the American Medical Association, will present the address. The society appropriated $3,000 to endow in perpetuity the Davidson Lecture to be given biennially by a physician or other scientist who shall be nominated one year in advance by the executive committee. The speaker will be given an honorarium of $300.

ILLINOIS

Society News.—The fifty-seventh annual meeting of the Southern Illinois Medical Association was addressed in Olney, November 5-6, among others, by Drs. Louis R. Wayman, Murphysboro, on "Appendicitis in Childhood"; Charles A. Elliott, Chicago, "Management of Edema"; Robert F. Lischer, Mascoutah, "The Social Evil," and Millard F. Arbuckle, St. Louis, "Diagnosis of Acute Mastoiditis in the Absence of the Classical Signs and Symptoms."

Chicago

Personal.—Dr. Daniel H. Williams left more than half of his $100,000 estate to the National Association for the Advancement of Colored People in his will, it is reported. Other charitable bequests included $5,000 each to Meharry Medical College, Nashville, Tenn., and to Howard University, Washington, for scholarships. St. Elizabeth's Hospital, Chicago, received $2,000. Dr. Williams died, August 4.

University News.—Dr. Allen B. Kanavel addressed the Medical History Club of the University of Illinois College of Medicine, November 4, on "The Value of Medical History to the Student of Medicine." The Medical History Club meets on the first Wednesday of each month, and the Medical Research Club on the third Wednesday. Clinical conferences are held on the second and fourth Wednesdays.

IOWA

Personal.—Dr. John T. McClintock, junior dean and professor of physiology at the State University of Iowa College of Medicine, Iowa City, is in charge of the college during the absence of Dr. Henry S. Houghton, dean. Dr. Houghton is a member of a commission appointed to appraise and evaluate facts on foreign missions now on a tour of the Orient (The Journal, October 10, p. 1082).

Annual Medical Clinic.—The twentieth annual medical clinic of the State University of Iowa College of Medicine, Iowa City, will be held, November 20-21. The program includes clinics, ward walks, laboratory demonstrations and case presentations. Friday evening, Richard E. Scammon, Ph.D., dean of medical sciences, University of Minnesota, will give an illustrated address on "The Last Great Plague of London." A motion picture film by Carl G. Hartman, Ph.D., on "Parturition in the Monkey" will be shown. The Northwestern-Iowa football game will be an attraction, Saturday afternoon.

KENTUCKY

Society News.—Dr. William H. Witt, Nashville, Tenn., among others, addressed the Christian County Medical Society, Elkton, October 20, on "Importance of the History in Gastro-Intestinal Disease."——Dr. William Allen Pusey, Chicago, addressed the semiannual meeting of the Southwestern Kentucky Medical Association, Fulton, October 27, on eczema.——Dr. Louis Wallace Frank addressed the Jefferson County Medical Society, Louisville, November 2, on cancer of the uterus. Dr. Robert P. Ball, Harlan, will discuss rabies at the meeting, November 16.

LOUISIANA

Birthday Volume in Honor of Dr. Matas.—The October issue of the *American Journal of Surgery* was dedicated to Dr. Rudolph Matas in honor of his seventy-first birthday and the completion of fifty years in the practice of medicine. The volume is a collection of surgical essays written in honor of Dr. Matas, who, since 1928, has been emeritus professor of general and clinical surgery at Tulane University of Louisiana School of Medicine, New Orleans, from which school he graduated in 1880. Dr. Matas has been president of the New Orleans Medical and Surgical Association, Louisiana State Medical Society, American Surgical Association and Southern Surgical Association. He was editor of the *New Orleans Medical and Surgical Journal* from 1883 to 1895, and, in 1926, was the Henry Bigelow medalist of the Boston Surgical Society.

MARYLAND

Dr. Finney to Be Awarded Bigelow Medal.—Dr. John M. T. Finney, professor of clinical surgery, Johns Hopkins University School of Medicine, Baltimore, will be awarded the Henry Jacob Bigelow gold medal in February by the Boston Surgical Society. The award is based on scientific contributions to and distinguished services in the field of surgery. Dr. Finney will be the fifth recipient of the Bigelow medal.

Memorial to Dr. Baer.—The treatment pool in the Thomas Bowles Memorial Building, a new addition to the Children's Hospital School, Baltimore, was recently dedicated to the memory of the late Dr. William S. Baer. The pool is to be used for the treatment of infantile paralysis. Dr. Baer, an orthopedic surgeon, died, April 7. The Thomas Bowles Memorial Building was made possible through a gift of $300,000 by Mrs. Bowles in memory of her husband. It will be dedicated, December 1, and opened for patients, January 1.

Dr. Abel Resigns at Johns Hopkins.—The resignation of Dr. John Jacob Abel as professor of pharmacology at Johns Hopkins University School of Medicine has been announced. Dr. Abel, who has held this position since 1893, will devote his time to further pharmacologic research. He will continue to edit the *Journal of Pharmacology and Experimental Therapeutics*. In 1926, Dr. Abel was awarded the Willard Gibbs Medal by the Chicago Section of the American Chemical Society. He has conducted numerous researches on animal tissues and fluids and on the physiologic and therapeutic action of various substances. Dr. Abel's greatest achievement was his research paving the way for the isolation of epinephrine in pure form.

MASSACHUSETTS

Dr. Adrian Lectures at Harvard.—Dr. Edgar Douglas Adrian, Foulerton research professor of the Royal Society at Cambridge University, England, delivered a lecture at Harvard University Medical School, November 3. His subject was "Sense Organs and Nerve Cells."

State Board for Registration in Chiropractic.—According to the *New England Journal of Medicine*, the newspapers reported, October 20, that chiropractors were about to file an initiative petition seeking passage of a law for the establishment of a state board of registration in chiropractic. This board would consist of three persons to be appointed by the governor to pass on the qualifications of applicants desiring to practice as chiropractors.

Society News.—At the Eleventh District Public Health Institute, October 13, the speakers included Drs. Wilson G. Smillie, Boston, "White House Conference"; Wilson W. Knowlton, Boston, "Health Service in Your Own Home";

Diphtheria Commission Dissolved.—The Diphtheria Prevention Commission of the New York department of health officially closed its three-year campaign with the resignation of Edward Fisher Brown as director, November 7, exactly three years after his appointment. The diphtheria campaign was financed mainly by the Milbank Memorial Fund and the Metropolitan Life Insurance Company. During its course more than 500,000 children were immunized, and both the mortality and the morbidity from the disease showed striking decreases. The average number of cases of diphtheria for the twenty-year period just preceding the beginning of this campaign was more than 10,000 a year, and the deaths averaged about 1,000. During 1930 there were 3,794 cases with 198 deaths. For the first ten months of the present year there have been 3,377 cases and 130 deaths, the health department reports. The campaign was conducted almost entirely along educational lines. The press and the radio broadcasting stations gave generous support and the message was spread further through social, business, welfare and religious agencies. The cost was about $140,000 a year. It is estimated that the economic loss averted amounts to approximately $10,000,000. Dr. Shirley W. Wynne, health commissioner, pointed out in his announcement, however, that there are about 700,000 children under 10 years of age in the city who are still not immunized.

NORTH DAKOTA

Society News.—At a meeting of the Sixth District Medical Society, Bismarck, October 8, Drs. Chester A. Stewart, Minneapolis, and William H. Bodenstab delivered addresses on childhood tuberculosis and the basis on which disabilities are determined for workmen's compensation, respectively.

Health Work in the Drought Area.—Twelve counties in North Dakota affected by the drought of 1930 have been organized into three units of four counties each, with the assistance of federal funds, to carry on health work for a period of nine months. A health officer is assigned to each district and a nurse to each county. Major projects include immunization, control of communicable disease, sanitation, and health education among various groups. The health officers appointed are Drs. Samuel J. Hillis, Berthold; Ingol M. Law, Halliday, and Laurence N. Serhus, Williston.

OHIO

Appointments at University of Cincinnati.—Glenn E. Cullen, Ph.D., has recently been appointed professor of research pediatrics at the College of Medicine of the University of Cincinnati. Other appointments announced are those of Drs. John H. Foulger, as associate professor of pharmacology, and Asher T. Childers and Louis A. Lurie, assistant professors of psychiatry.

Conference of Health Commissioners.—The twelfth annual conference of health commissioners of Ohio will be held in Columbus, November 18-20. Among the speakers will be Drs. Herbert M. Platter, Columbus, on "Mutual Ideals of the Medical Profession in Official Health Work and Private Practice"; Charles A. Neal, Columbus, "Contribution of Nonofficial Agencies to Public Health and Their Relationship to Official Service," and John E. Monger, Columbus, "Status of Diphtheria Immunization." Other subjects of addresses and conferences will be policies of public health nursing, sanitation of school buildings, food and milk sanitation, and registration of vital statistics.

OKLAHOMA

Society News.—Drs. Leroy Long and Lewis J. Moorman, both of Oklahoma City, were among speakers at a meeting of the Southern Oklahoma Medical Association, Norman, September 8, on "Acquired Arteriovenous Communication and Treatment" and "Recent Methods of Treatment in Advanced Pulmonary Tuberculosis," respectively. Group clinics were held at the Central Oklahoma State Hospital, Norman, on organic psychoses, convulsive states, functional psychoses and exogenous toxins.

PENNSYLVANIA

Society News.—H. Edmund Friesell, D.D.S., dean, University of Pittsburgh Dental School, addressed the Fayette County Medical Society, Uniontown, November 5, on "The Desirability of Better Cooperation Between Professions Engaged in Health Service."——Speakers at the meeting of the Washington County Medical Society, November 11, were Drs. Grover C. Weil on "Larval Therapy in the Treatment of Osteomyelitis and Acute Surgical Infections"; John Henry, "Treatment of Head Injuries by Hypertonic Solution," and William J. Fetter, Pittsburgh, "Cincophen Poisoning."

Philadelphia

Henry Leffmann Fellowship Awarded.—The Philadelphia College of Pharmacy and Science has awarded the Henry Leffmann fellowship for research in pharmaceutical chemistry to Amelia Mesa de Ponce, Pharm.D., Havana, Cuba. Dr. de Ponce, who is a member of the Cuban commission which translated the tenth revision of the U. S. Pharmacopeia into Spanish, will conduct research on the stabilization and standardization of ergot.

Society News.—A symposium on pyelitis was presented before the Philadelphia County Medical Society, November 11, by Drs. James L. Richards, who discussed pyelitis during pregnancy and the puerperium; William H. MacKinney, pyelitis in adults, and Howard Childs Carpenter, pyelitis in infancy and childhood.——Drs. Arthur Bruce Gill and Charles H. Frazier addressed the Philadelphia Academy of Surgery, November 2, on "Treatment of Fracture of the Neck of the Femur, Particularly the Question of Ununited Fractures" and "Use of Potassium Iodide in Hyperthyroidism," respectively.——Dr. Myron Metzenbaum, Cleveland, addressed the Philadelphia Laryngological Society, November 3, on "Dislocations of the Lower End of the Septal Cartilages."——Drs. Brooke M. Anspach and Jacob Hoffman presented a joint paper on "Diagnosis and Treatment of Endocrine Dysfunction Underlying Amenorrhea, Menorrhagia and Sterility"; Drs. Joseph C. Yaskin and Isaac Andrussier, a paper on "Syringomelia Complicating Pregnancy and Labor," and Drs. Lewis C. Scheffey, Thomas R. Morgan and Cheney M. Stimson, "Analysis of a Series of Cases of Ectopic Pregnancy," before the Obstetrical Society of Philadelphia, November 5.——Dr. Francis R. Packard will deliver the fifth Weir Mitchell Oration before the College of Physicians of Philadelphia, November 18, on "How Medicine in Philadelphia Was Influenced by London and Edinburgh in the Eighteenth Century."

SOUTH CAROLINA

Society News.—Drs. Austin T. Moore and John B. Setzler addressed the Columbia Medical Society, September 14, on treatment of fractures and the antipellagra campaign, respectively.——Among speakers at the meeting of the Third District Medical Society, Newberry, September 8, were Drs. Charles A. Mobley, Orangeburg, and Carroll J. Scurry, Greenwood, on basal and spinal anesthesia, respectively, and Floyd D. Rodgers, Columbia, treatment of carcinoma of the cervix.——The Fourth District Medical Society, at a meeting, September 8, at Anderson, heard addresses, among others, by Drs. Lawrence H. McCalla, Greenville, on "Practical Value of Friedman's Hormone Test for Pregnancy"; William T. Lander, Williamston, "Alkaline Treatment of Typhoid Fever," and Charles A. Mobley, Orangeburg, "Application of Surgical Drainage to Cesarean Section."

WASHINGTON

Society News.—Dr. William B. McCreery, among others, addressed the Pierce County Medical Society, Tacoma, September 8, on cesarean section.——Dr. Ora H. Cox, U. S. Public Health Service, read a paper on "Public Versus Private Medicine" before the Yakima County Medical Society, September 14.

Hospital News.—The Conway Hospital, Elma, which was closed in July, 1930, with the closing of mills and camps in the vicinity, was recently reopened.——Dr. Herbert G. Burden, medical superintendent of the Walla Walla Sanatorium, College Place, has resigned to enter private practice.——The Arlington General Hospital, Arlington, has closed after nineteen years of service.

WEST VIRGINIA

Society News.—Dr. Charles B. Wylie addressed the Monongalia County Medical Society, Morgantown, October 6, on "Paranasal Sinusitis as a Causative Factor in Ocular Troubles."——Dr. William S. Fulton, Wheeling, addressed the Marshall County Medical Society, Moundsville, October 13, on surgery in the Orient.——A symposium on tuberculosis was presented before the Raleigh County Medical Society, Beckley, October 15, by Drs. George F. Grisinger and Ulysses G. Cook, Beckley, and William P. Black, Charleston.——Drs. William H. Goodwin and Henry B. Mulholland, University, Va., addressed the Mercer County Medical Society, Bluefield, September 24, on "Endometriosis" and "Management of Diabetes," respectively.——Drs. William B. Porter, Richmond, Va., and Albert H. Hoge, Bluefield, addressed the Kanawha County Medical Society, Charleston, October 12, on "The Present Conception of Anemias" and "The Future of Organized Medicine," respecto emphasize the dangers of generalization from success in a few areas of the body to success in every part. It is held that the great need at present is reliable information as to the value of radium in the hands of those who have the necessary knowledge. Further experience is necessary for the solution of this problem. The commission has already indicated a period of five years at least from the inception of the national scheme as necessary for any confident verdict.

GRADUATE EDUCATION IN RADIOTHERAPY

Two graduate courses in radiotherapy have been conducted in London—at Mount Vernon Hospital, which as a research school is receiving support from the Medical Research Council, and at the Radium Institute. Though successful, the warning is given that attendance at these courses, which are necessarily of short duration, cannot give the surgeon or even the surgeon radiologist sufficient knowledge and experience to practice radium therapy efficiently without the advice and assistance of a specialist radium officer.

NATIONAL RADON

The Radium Institute has undertaken to produce national radon from radium lent for this purpose by the commission for the benefit of such national centers and other institutions as are prepared to observe certain conditions with regard to its use. The radon will be supplied at the rate of 25 cents per millicurie for the use of nonpaying patients under the following conditions: (1) Application must come from an institution and not from an individual; (2) the institution must show that its staff is sufficiently experienced in the use of radon; (3) the staff must keep records of cases, including follow up, on the radium national forms, and send a summary of the results each year.

RADIUM RESEARCH

The commission has allocated 1 Gm. of radium element to the Medical Research Council and 0.18 Gm. to the National Physical Laboratory. The policy of such allocations to large corporate bodies in touch with persons especially qualified to conduct the kind of research work involved offers many advantages. An encouraging sign of the activity of research is that within a few months of completing arrangements with the Medical Research Council, 95 per cent of the gram had been allocated to research groups.

RADIUM OFFICERS AND THEIR RISKS

In a few cases, insufficient care has been taken of the lent radium and small quantities have been lost. Against this regrettable result, suitable action has been taken. But a far more serious consequence, in one or two instances, has been injury of the person charged with the duty of handling radium. Keenness in the work may lead to neglect of precautions, and the person may not be conscious of the injury to health until it is established. Even when periodic blood tests have been made, they have not been adjudicated by those competent to judge their significance. It is recommended that periodic blood counts should be submitted to a physician in medical charge of the radium staff. Radium officers require exceptional periods of rest. In order to become one, an otherwise qualified candidate should be trained at a recognized center, under skilled radiologists, for not less than twelve months.

"Colonies" for Mental Defectives

In January, 1930, the board of control (of lunacy administration), with the approval of the minister of health, appointed a committee to report on the essential structural requirements of a complete colony for mental defectives of all types, and on the extent to which the cost could be reduced by adoption of semipermanent or temporary buildings or of other new methods of construction. The report has just been published. Although not required to deal with questions of policy, the inquiry inevitably involved consideration of the present-day method of housing defectives in colonies, as compared with the older one of placing them in large barrack-like structures. The report is strongly in favor of the colony system and states that a complete colony should contain all the structures necessary for the housing, training and recreation of defectives of all grades and ages, and the arrangements should be designed with reference to the fact that the great majority of the colonists will reside there for many years and some for their lives.

PARIS

(From Our Regular Correspondent)

Oct. 7, 1931.

International Dental Congress

The seventh International Dental Congress was held recently in Paris at the Grand Palais, under the chairmanship of Dr. Villain, and with the minister of public health in attendance. An immense exhibit of dental apparatus and dental products, displayed by more than 300 French and foreign exhibitors, was an interesting feature. Thirty-three countries were officially represented. The delegates from the United States were Messieurs Olliver, Emerson, Percy Howe, Leland Legro, Puterbaught, Turner and others. More than 400 papers were presented, a large proportion of which emanated from the foreign contingents. Mr. Yamabaki and Mr. Hanazawa, Japanese, offered some remarkable histologic studies on dental tissues. The speakers included Mr. Leland Legro, Mr. Ottolangi of Turin, Mr. James Warwick of London, Mr. Lartschneider of Linz, Mr. Karlström of Berlin, Mr. Mizuami Kekuo of Japan, Mr. Cieszinski of Lemberg, Mr. Balenosa of Colombo, Mr. Baya of Lisbon, Mr. Douglas Radfort of Edinburgh, Mr. Guilmour of Liverpool, Mr. Metral of Geneva, Mr. Chiwaki of Tokyo, Mr. Dubeau of Montreal, Mr. Clausen of Beirut, Mr. Puterbaught of Chicago, Mr. Salas of Chile, Mr. Jaccard of Geneva and Mr. Fehr of Berlin. A long discussion developed concerning the material to be used in bridges. Legro of Philadelphia recommended porcelain teeth set in a peg of iridescent platinum. Gonon and Lakermance of Paris advocated the use of wires enclosed in the porcelain and baked in the paste according to the same principles as for the manufacture of reinforced concrete in the building industry. Another discussion arose over the question of alveolar pyorrhea, and again over that of operative anesthesia, which brought into comparison regional anesthesia at the points of the emerging nerves and trunk anesthesia at the level of the nerve ganglions, and still another on maxillofacial prosthesis. An article was read by Dunning of New York on inflammation of the inferior maxillary nerve and its treatment.

The Congress of Reparative and Cosmetic Surgery

The second Congrès de la société française de chirurgie esthétique met, October 2, in Paris, under the chairmanship of Dr. Dartigues. Although the scope of the congress was somewhat limited, the attendance was large. It was hard to believe that so many surgeons in France had taken up this specialty. There were also many foreigners present: Jauregi of Buenos Aires, Coelst of Brussels, Marchal of Antwerp, Rueda Vargas of Colombia, Slocker, Luke and Alvarez of Madrid, Manna of Rome, San Venaro Roselli of Milan, Amersbach and Hardt of Germany, Dos Santos, Madureira of Lisbon, Precechtel of Prague, Jiano of Bucharest, Corachan of Barcelona, and Montavé of Havana. There were also several women physicians. Some fifty papers were presented. Several speakers explained new methods of rhinoplasty and plastic reconstruction of the nose; others described the mode of taking and the fixation of various grafts; others reparations on the cornea and the adnexa of the eye; several spoke on plastic operations on the breasts, and on plastic correction of the effects of facial paralysis. There and with a declining number of marriages it will be too high. Kahn figures out therefore a much more rapid and a greater decline in the birth rate for Germany than do the other authors. He assumes also that the decline of the birth rate in all Germany will equal eventually the present much greater decline in the large cities and among the Jews. Kahn considers also the vital statistics in other European countries. In all the countries of northern and western Europe, with the single exception of the Netherlands, a marked decline in the birth rate is observable. The high mortality in France is doubtless due solely to a changed distribution of the age groups, a natural result of the low birth rate that has existed for years. However, it should be borne in mind also that not until recent years has there been an energetic combating of tuberculosis in France. Kahn thinks that there is evidence of a beginning limitation of births also among the Slavic nations and that the natural increase of population among them appears to be approaching the end. Others, however, earnestly oppose this view and call attention to the invasion of eastern Germany by Slavic elements. It is contended also that the mortality of the Slavs, who are now adopting German methods of combating social diseases and child mortality and are introducing German hygienic methods, might be greatly reduced. It will be many decades before the great increase of population in eastern Europe will cease, if it ever does.

Accompanying the decline in the birth rate is a change in the distribution of the age groups of the population. As a result of the high birth rate of previous years, Germany has today a much larger number of persons capable of pursuing a gainful occupation than before the war. In 1910 there were from 35 to 36 million such persons in Germany (aged from 15 to 65 years), whereas now there are 45 million. That explains in part the large number of unemployed persons, since the demand for labor, in view of the economic conditions and the replacement of much manual labor by machines, has not increased. Not until 1970 will the problem arise of a decrease in the number of persons of wage-earning age (15 to 65). Both authors are agreed that the burden of pensions and old age benefits will increase from year to year. In 1925, the number of persons more than 70 years old was 3.17 per cent. It is estimated that there will be 5.64 per cent above that age in 1950 and 7.7 per cent in 1970. Kahn fears that the "one or no child system" that prevails at present in Berlin will be extended to the smaller cities and to the rural districts. He does not count on much improvement in demographic conditions through the introduction of government measures. Families with many children may obtain thereby some economic relief, but the actual number of children will not be increased by such measures. A change for the better cannot be expected to begin in the large cities. If it comes at all it will have to start in the small cities or the rural districts. No improvement can be hoped for until political conditions have become more settled. That the joy in a beautiful family life with a number of sturdy and healthy children has not entirely disappeared from the hearts of the German people is still shown by the good-sized families found in places that are far removed from the influences of metropolitan life. The good eugenic effects of such sound and healthy German families will become manifest again after the lapse of a few decades.

Roentgen Cinematography

Dr. Gottheiner and Dr. Kurt Jacobsohn of Berlin have succeeded, with the aid of the Deutsche Forschungsgesellschaft, in devising a roentgen cinematographic method by which the movements of the internal organs can be recorded on a film, which will make it possible to avoid many misleading features of the ordinary roentgenogram. A special cinematographic camera is employed, which is equipped with an extremely strong objective. This camera serves to photograph the shadows thrown on a special screen by the roentgen rays. Also the film material is characterized by an extremely high sensitiveness never before attained. It has been found possible to record the various movements of the diaphragm during respiration, coughing and speaking. In collaboration with the phonetic institute of the Charité Hospital, these films are to be used in creating a system of instruction for singers and actors. The films show distinctly the movements of the organs of the upper respiratory tracts. The pictures are so clear that an expert can reconstruct all the spoken syllables, which opens up new possibilities for the didactics of speaking and particularly for the education of deafmutes.

The Ventilation of Living Rooms

During the past ten years, the new type of apartments have been distinguished by their simplicity and their practicality. It is important, from the standpoint of the physician, that, along with many advantages—in the methods of heating, the hygienic cooking arrangements, and the like—there are associated disadvantages that arise from the style of construction and an exaggerated effort to save space. Owing to the increased cost of building material and to high wages, an endeavor is made to cut down expense by reducing the height of the ceilings and the area of floor space. The walls are not as sound proof as formerly, which results in damage to the nervous system of the occupants of these new-styled apartments. In rooms with reduced cubic contents, the question of ventilation takes on added importance. Recent investigations by W. Liese of Berlin show that the increase of air pressure before screens and draperies, when currents of air strike them, is less in the case of screens made of rods or wires than with those having punched-out holes, even assuming that the porosity is the same. The air pressure produced by filter cloth and drapery materials, except netting and voile, is so great that the effects of window ventilation are almost nil if shades and draperies are drawn.

VIENNA

(From Our Regular Correspondent)

Oct. 8, 1931.

Abortion in Austrian Hospitals

The Austrian public health service instituted an inquiry (beginning with the year 1929) into the problem of abortion, which, together with the decline in the birth rate, has for years occupied the forefront of demographic interest. It is of course impossible to obtain reliable information in regard to cases of abortion that take place outside the hospitals. Hence, the inquiry was confined to cases that occur chiefly or entirely in hospitals. About 9,000 cases are involved. This number is of course not identical with the actual number of abortions in Austria. The purpose of the inquiry was to show the dangers associated with miscarriages as revealed by the number of deaths and disorders, and likewise to gain an insight into social conditions. To the various hospitals record cards were distributed, which were filled out so as to give certain data in regard to the patient: the time of the last menses, the time of the abortion, the number of previous births or miscarriages, the number of children still living, and the results of the abortion. The cards for the year 1929 were worked over by the statistical bureau of the ministry of health. The largest number of cases of abortion occurred among unmarried women of the age groups 21 to 25, and among married women of the age groups 26 to 30. The abortion occurred in 80 per cent of the cases in the second and third months of pregnancy, no difference being observable between married and unmarried mothers. In 9.6 per cent of the abortions, pathologic sequels developed; in Vienna alone, the proportion was more favorable: 5.9 per cent. The case of 74.8 per cent. The variations were not so great as those given by other authors (Zunz, Vitry and Giraud, Claude and Blanchetière). The iodine content was determined by Kendall's method, modified by Kelly and Husband. The total iodine content was calculated from the water content. The iodine content was from 0.3 to 9 mg. per gram of dried thyroid, with an average of 1.99 mg. per gram of dried thyroid substance; that is, from 1.2 to 39 mg., with an average of 8.37 mg. for the total gland. The figures of dried thyroid glands of men and of women gave averages of 2.06 and 1.88 mg., respectively. American authors (Wells, Marine and Lenhart) gave averages for men and for women of from 2.1 to 2.17 mg. of iodine per gram of dried substance. Some European authors gave averages from 0.63 to 2.8 mg. for 1 Gm. of the dried substance. There is no relationship between the age of the individual and the content of iodine and water of the thyroid gland. In short, it was established that the average weight of normal thyroid of persons of Rio de Janeiro is 18.91 Gm., with a water content of 74.8 per cent and an iodine content of 1.99 mg. for 1 Gm. of dried thyroid; that is, 8.37 mg. for the entire gland.

Experiments with Virus of Typhus Fever

Dr. J. L. Monteiro, from the Instituto Butantan of São Paulo, recently published the results of his work on problems dealing with the relationship between the micro-organism of the Rickettsia group and those organisms which are the etiologic agents of the varieties of the exanthematic typhus fever of São Paulo. A previous letter told that the author could prove the presence of micro-organisms of the Rickettsia group in Descemet's membrane, after the inoculation of the virus of exanthematic typhus fever of São Paulo, by the ocular route, into guinea-pigs. Recently the author also proved the presence of the same organism in the endothelial cells of the peritoneal wall of guinea-pigs, previously injected by the intraperitoneal route with the same virus. The author regards exanthematic typhus of São Paulo as a native disease which has its own individuality although belonging to the group of typhus fever. He proposes the name of "Rickettsia brasiliensia, n. sp.," to distinguish the causative micro-organism of this variety of typhus fever.

Marriages

Clark Lee Shipley, Paris, Ill., to Miss Veronica McCormick of Ambia, Ind., in Terre Haute, July 15.

Bedford Forrest McAnulty, Bolivar, Tenn., to Miss Eva May Montgomery in Memphis, September 6.

Earl E. Kleinschmidt to Dr. Gladys J. Kleinheksel, both of Ann Arbor, Mich., September 12.

Seba Lorraine Whitehead, Asheville, N. C., to Miss Charlotte Eleanor Barber, September 30.

George F. Bicknell, East Chicago, Ind., to Miss Emily Klawitter of Calumet City, October 10.

Harold Bellin, Albany, N. Y., to Miss Mildred Grosberg of Saratoga Springs, November 1.

Harold T. Gustafson, Minneapolis, to Mrs. Mildred Lindesay of Blue Earth, in September.

Sidney Peck Cohen, New York, to Miss Sally Kreenwich of Jersey City, N. J., June 14.

Oscar A. Sander, Milwaukee, to Miss Meriam Wright of Delavan in Madison, recently.

Israel Ezra Turner, Durham, N. C., to Miss Minnie Pearson, September 2.

Graydon D. Underwood, Cleveland, to Miss Meriel Latham, September 6.

L. A. Gates, Bridger, Mont., to Miss Izola M. Albrecht of Minneapolis, recently.

Herman H. Mai, Chicago, to Mrs. Bertha Eckert, September 18.

Deaths

Joseph Daniel Becton, Sr. ⊕ Greenville, Texas; University of Nashville (Tenn.) Medical Department, 1890; member of the House of Delegates of the American Medical Association, 1911-1913 and 1924; member of the state board of medical examiners and the American College of Surgeons; past president of the State Medical Association of Texas, Hunt County Medical Society and the Medical Association of the Southwest; formerly professor of pathologic surgery, Baylor University, Dallas; surgeon in chief and owner of a hospital bearing his name; aged 65; died, October 14, of nephrolithiasis and empyema.

Margaret F. Butler ⊕ Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1894; professor of laryngology, rhinology and otology at her alma mater; member of the American Academy of Ophthalmology and Oto-Laryngology and the American College of Surgeons; rhinologist and oto-laryngologist to the Woman's Hospital of Philadelphia; aged 70; died, October 16, of cerebral hemorrhage, while operating on a patient.

James Conley Merriman Floyd ⊕ Steubenville, Ohio; Long Island College Hospital, Brooklyn, 1875; past president of the Ohio State Medical Association and the Jefferson County Medical Society; at one time member of the school board; aged 79; formerly on the staff of the Ohio Valley Hospital, where he died, October 17.

Henry Vining Ogden, Milwaukee; McGill University Faculty of Medicine, Montreal, Que., Canada, 1882; member of the State Medical Society of Wisconsin; formerly on the staffs of the Columbia Hospital, Milwaukee Children's Hospital and the Milwaukee Hospital; aged 74; died, October 10, of chronic lethargic encephalitis.

William Leland Stowell, Bronxville, N. Y.; Medical Department of the University of the City of New York, 1881; at one time instructor in diseases of children at his alma mater; formerly on the staff of the New York City Children's Hospital, New York; aged 71; died, September 30, of cerebral hemorrhage.

Martha Mitchell Bacon, Kansas City, Mo.; College of Physicians and Surgeons, Medical Department Kansas City University, 1897; member of the Associated Anesthetists of the United States and Canada; aged 68; died, October 21, of bronchopneumonia, chronic bronchitis and arteriosclerosis.

Ambrose Elisha Potter, Springfield, Mo.; St. Louis College of Physicians and Surgeons, 1911; member of the Missouri State Medical Association; served during the World War; aged 45; died, September 1, in the Springfield Hospital, of internal hemorrhage, due to an automobile accident.

Benjamin C. Brett, Green Bay, Wis.; Dartmouth Medical School, Hanover, N. H., 1860; member and past president of the State Medical Society of Wisconsin; Civil War veteran; for more than twenty years health officer of Green Bay; aged 99; died, October 10, of senility.

Thomas Dartwell Taggart ⊕ Atlantic City, N. J.; Jefferson Medical College of Philadelphia, 1896; for twenty-five years connected with the Atlantic City Hospital; aged 61; died, September 23, in St. Louis, of septicemia, chronic myocarditis and hypertrophy of the prostate.

Charles Edward Banks ⊕ Brookline, Mass.; Dartmouth Medical School, Hanover, N. H., 1878; for many years senior surgeon in the U. S. Public Health Service; aged 77; died, October 21, in Hartford, Conn., of coronary thrombosis and pulmonary edema.

Leroy Southmayd ⊕ Great Falls, Mont.; University of Michigan Medical School, Ann Arbor, 1892; past president of the Medical Association of Montana; on the staff of the Columbus Hospital; aged 62; died, August 29, of cerebral hemorrhage.

Abraham M. Zebold, Shelby, Ohio; Starling Medical College, Columbus, 1884; on the staff of the Shelby Memorial Hospital; aged 77; died suddenly, October 1, at the home of his son in Garden City, L. I., New York, of heart disease.

Nicholas G. L. Shillito ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1895; member of the American College of Surgeons; served during the World War; aged 60; died, October 18, of intestinal carcinoma.

Joseph Patrick Kearney, Lowell, Mass.; Tufts College Medical School, Boston, 1908; member of the Massachusetts Medical Society; served during the World War; aged 52; died, September 25, of coronary thrombosis.

Correspondence

SYMPATHECTOMY IN PARALYSIS AGITANS

To the Editor:—My attention has been called to a communication in The Journal (August 29, p. 663) on the subject of paralysis agitans. As the reply includes a reference to me, a statement from me may be of interest.

I formerly operated on the side of the lesion, with the result stated in the reply to your query, that is, a slight reduction of spasticity. Now I operate on the side of the lesion in the brain producing the vasodilatation of the vessels of that organ and obtain a contralateral diminution of tremor and loss of rigidity. Diminution of tremor occurs immediately after operation, but the tremor may not disappear for six or eight weeks. I have operated on eight patients with a complete loss of tremor in four and a considerable diminution of tremor in three; in the remaining one, tremor had been of long standing and the man was 58 years of age.

The explanation of the effect is this: It is well known that anoxemia or slight degrees of asphyxia produce hyperactivity of the central nervous system. By improving the circulation of the brain, there is depression of activity in the cells concerned in the production of tremor.

I shall shortly be publishing a paper on this work, probably in the *British Medical Journal.*

N. D. Royle,
Craignish, 185 Macquarie Street,
Sydney, Australia.

THE SPELLING OF "ENDAMOEBA"

To the Editor:—A paper on "Amebiasis Cutis" by Dr. M. F. Engman, Jr., and myself was published in the *Archives of Dermatology and Syphilology* for July, 1931. In the course of publication the spelling of the scientific name of the genus "Endamoeba" was changed to Endameba. When Dr. Engman asked to have the spelling changed back the reply stated that the American spelling was "Endameba." I am familiar with the American tendency to simplify the spelling of ordinary words, "ameba," for example, but I am puzzled by the policy expressed which changes the spelling of a scientific name, which is always printed in italics, from that which conforms to the International Rules of Zoological Nomenclature. In all American textbooks and scientific journals the name of the genus is spelled Endamoeba or Entamoeba. The choice between Endamoeba Leidy, 1879, and Entamoeba Casagrandi and Barbagallo, 1895, is a technical point which does not enter into the present discussion. I should appreciate knowing your point of view.

Henry E. Meleney, M.D., Nashville, Tenn.

[Note.—The press of the American Medical Association follows official nomenclatures of learned societies in such usages. Dr. Charles W. Stiles was asked to discuss the subject. He writes:]

To the Editor:—I have a great deal of sympathy with your point of view in regard to the diphthong so far as this concerns English words. When we are dealing with Latin technical names, however, the shortening of the diphthong results in great confusion and a tremendous amount of extra indexing and accumulative loss of money for the scientific world which must run into thousands of dollars. It becomes necessary to index names both with the diphthong and with the shortened form and in addition to this it places many names out of file when these begin with an initial diphthong and results in the creation of homonyms, therefore, in changing names unnecessarily. I think that a reasonable and practical compromise between the two extremes is to adopt the policy that the diphthong be shortened when the word is English, for instance, diarrhea, but the diphthong be used when the word is a Latin scientific name, for instance, Endamoeba.

A prejudice has arisen against diphthongs especially because of the similarity of ae and oe when certain fonts of type are used, for instance in France. The confusion here is easily obviated by avoiding the ae diphthong type which is so similar to the oe diphthong.

It seems to me that your journal is so important as an example to other journals that you would do well to lead in the general policy of endeavoring to prevent taxonomy from becoming a chaos of words. Accordingly, I venture to express the hope that you will write out the ae and the oe when these diphthongs occur in Latin technical taxonomic names.

The International Commission on Zoological Nomenclature has already ruled in favor of Endamoeba instead of Entamoeba.

C. W. Stiles, M.D., Washington, D. C.

[Hence the American Medical Association Press will follow the International Commission on Zoological Nomenclature on such words.—Ed.]

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PURPURA, POSSIBLE LEUKEMIA AND ARTHRITIS

To the Editor:—I have a patient whom I saw first, May 15. At that time he was complaining of pain in the right trapezius muscle and on pressure over both condyles of the humerus. He gave a history of tonsillitis three months previously, followed by purpura of the legs, coming in crops with sometimes an interval between and sometimes overlapping each other. The purpura was confined to the legs below the knees. He had no pain in any other joints. He had lost about 11 pounds (5 Kg.) in the past three months. Urinalysis has been negative on several occasions. Blood pressure was 120 systolic and 75 diastolic, May 22. The last of May he developed hives on the upper part of the right arm, which lasted only a few days and have not since appeared. The last of July he came in with shingles on the right forearm. These also soon disappeared. His pain in the right shoulder got better at first but lately has become more and more severe, particularly when he lies down. Until the last few days he has been able to get relief for a time by standing up, but now the pain persists in any position. A blood count made the latter part of May showed a very low white cell count, 3,600, and another made a few weeks later was the same. Otherwise there was no abnormality in the blood count. The purpura reappears occasionally and has been confined to the lower part of the legs except on one occasion, when it reached to the groins. I have prescribed sodium salicylate, cinchophen, and a cinchophen-iodine preparation in succession, but none seem to have had any effect. He had one roentgen treatment over the right arm and lower cervical and upper dorsal spine, but the pain increased immediately after, and he refused more of this treatment. Lately, I prescribed codeine for pain, but 1 grain (0.065 Gm.) by mouth failed to produce relief. Today he came downtown and was taken sick, becoming dizzy and vomiting. I took him home and gave him morphine hypodermically for the pain. He is a man, aged about 35, short, but well built, and always before healthy. He used to be a wrestler. Have you any suggestions as to a form of treatment that will be effective in this case? If so, I will appreciate them.

W. Stuart Wood, M.D., Decatur, Ill.

Answer.—Several angles present themselves from a diagnostic standpoint. The persistent leukopenia in association with purpuric manifestations is highly suggestive of a leukemia existing in an aleukemic phase. Urticaria and tonsillitis are not infrequent concomitants of a leukemia, and tenderness over the bones may be elicited in some cases. The patient should be carefully examined for the presence of enlarged lymph nodes and an enlarged spleen. While in some cases the blood smears appear normal, in most cases immature leukocytes of the lymphocytic or myelocytic series are present in abnormal proportions. Careful and oft-repeated studies of the blood will ultimately reveal the hyperleukocytosis so characteristic of a leukemia, for the aleukemic phases are only transitory. A blood platelet count and tests of the coagulation time, bleeding time and retractility of the blood clot should be carried out to exclude a hemorrhagic diathesis with possible hemarthrosis of the shoulder joint.

In the absence of any abnormal blood conditions, an arthritis of the shoulder joint or of the cervical spine remains for consideration. Roentgenograms of these parts are valuable in revealing any hypertrophic bone changes.

104, in the bladder 104.1, in the posterior rectal wall 104, and in the cervix 112. As Pelouze states that cultures of gonococci will survive at 113 F. for thirty minutes, surely 130 should kill the gonococcus instantaneously, but the gonococcus does not remain latent in the vagina.

Gonorrhea persists in women largely because of the continued presence of the gonococcus in the para-urethral, the cervical and the endocervical glands. As the authors clearly state that the surrounding tissue is never heated above 112, it is fair to presume that the benefit derived from the long continued heat is due to a stimulation of the patient's local defensive mechanism (histiocytes and polymorphonuclear leukocytes), which destroy the gonococcus, rather than a direct thermic effect.

INFECTED URETHRAL FOLLICLES

To the Editor:—I have two patients with chronic urethritis whose only symptoms are large and heavy shreds and filaments in the first portion of the urine. One did not have sufficient treatment during the acute stage and the other had none at all, about a year ago. There is no discharge, the prostatic infection cleared up under treatment, and there are no subjective complaints. Instillations, sounds, and urethroscopy were applied and consultants were asked; still the condition shows no improvement. The textbooks all state that this condition is caused by the devitalized mucous membrane, but none of them offer a specific therapy. Please omit name.

M.D., New Jersey.

ANSWER.—Assuming, as the correspondent states, that the prostatic infection has been cleared up, the persistence of the shreds is probably due to the presence of either granulations or infected urethral follicles. This can best be determined by a careful urethroscopic examination. If the cause is infection in the urethral follicles, they should be destroyed with the high-frequency spark, and if due to granulations, they may be treated in the same manner.

BIRTH OF ONE CHILD AFTER TWIN MISCARRIES

To the Editor:—In "Merrily I Go to Hell—Reminiscences of a Bishop's Daughter," by Mary Cameron (Brentano's, 1931) this statement is made: "Three months before I was born, my mother miscarried a boy baby and at the appointed time I made my unethical appearance." To what extent is one justified in believing this?

H. G. BULL, M.D., Ithaca, N. Y.

ANSWER.—This statement can be true because occasionally a fetus is expelled during the early months of pregnancy, and a few months later a normal full-term child is born. Usually, of course, when one fetus of twins is expelled prematurely the other one follows shortly afterward. It is also usual, when one of twins or triplets dies in utero, for it to remain within the uterus until term. At that time when the full-term normal child or children are born, the dead fetus is expelled. At this time it presents the appearance of a flattened, dried, shriveled fetus much smaller than the living children and it is known as a fetus compressus or fetus papyraceus.

PRESCRIPTION OF POTASSIUM IODIDE

To the Editor:—*Will potassium iodide act the same as sodium iodide?* If so, please write a prescription that will contain potassium iodide 10 drops and belladonna 5 drops. Please write prescription in drops, grams and ounces.

CARL J. SNITKAY, M.D., Belle Plaine, Iowa.

ANSWER.—Potassium iodide has the same effect as sodium iodide. *Assuming that the prescription desired is to contain* 0.6 Gm. (10 grains) of potassium iodide and 0.3 cc. (5 minims) *of tincture of belladonna,* it would be written as follows:

		Gm. or Cc.	
℞	Potassium iodide	15|	ʒ v
	Tincture of belladonna...............	7|5	ʒ iiss
	Compound tincture of cardamom.......	5|	ʒ iss
	Diluted alcohol...............to make	100|	℥ iv

M. Label: Teaspoonful in water three times a day after meals.

STERILITY PRODUCED BY ROENTGEN RAY

To the Editor:—You publish a physician's question regarding temporary sterility produced by the roentgen ray (THE JOURNAL, October 10, p. 1095). Your answer refers the correspondent to a skilled roentgenologist who has had experience with temporary roentgen castration. May I call your attention to the fact that at present nobody has this experience. There are reasons to believe that the consequences of temporary roentgen sterilization may manifest themselves no sooner than in the second generation, which means the offspring of the patient's children. Pending the decision of this question, I feel we should follow Martius of Germany, who advises either permanent roentgen sterilization or none at all (*Strahlentherapie* 41:47 [June 13] 1931).

SIEGFRIED W. WESTING, M.D., Brooklyn.

Council on M
and I

COMING

AMERICAN BOARD OF OBSTETRI
Dec. 29. Sec., Dr. Paul Titus,
AMERICAN BOARD FOR OPHTHA
Sec., Dr. Wm. H. Wilder, 122
CALIFORNIA: *Reciprocity.* L
Sec., Dr. Charles B. Pinkham,
CONNECTICUT: *Endorsement.*
P. Murdock, 147 West Main St
DELAWARE: *Regular and Ho*
Dr. Harold Springer, 1013 W
DISTRICT OF COLUMBIA: W
Fowler, District Building, Wash
FLORIDA: Jacksonville, No
812 Citizens Bank Bldg., Tam
KANSAS: Kansas City, Dec.
KENTUCKY: Louisville, Dec.
West Main St., Louisville.
MARYLAND: *Regular.* Balti
Fitzhugh, 1211 Cathedral St.
Sec., Dr. John A. Evans, 612 W
NEBRASKA: Lincoln, Nov. 2
Lincoln.
NORTH CAROLINA: *Endorsem*
MacConnell, Davidson.
OHIO: Columbus, Dec. 8-10.
Columbus.
TENNESSEE: Memphis, Dec
Medical Arts Bldg., Memphis.
UTAH: Salt Lake City, Dec
Capitol Building, Salt Lake C
VIRGINIA: Richmond, Dec.
doah Life Bldg., Roanoke.
WEST VIRGINIA: Morganto
Charleston.
WISCONSIN: *Basic Science.*
N. Bauer, 3414 West Wiscon

Arkansas

Dr. Claude E. Laws, se
Medical Examiners, report
12-13, 1931. The examinat
120 questions. An average
One candidate was exami
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College
Kansas City College of Medici

Georgia J

Dr. B. T. Wise, secretar
Examiners, reports the writ
Augusta, June 10-11, 1931.
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all of whom passed. The f

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Emory University School of M
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93.4, 93.5, 93.6, 93.8, 93.9,
University of Georgia Medical
89.7, 90.1, 90.6, 90.7, 90.8, 9
92.4, 92.5, 92.7, 92.7, 92.7, 92
93.8, 94, 94.2
Rush Medical College.........
Meharry Medical College.......
(1930) 89.5, (1931) 88.3, 8
University of Edinburgh Facult

Dr. Wise also reports 1
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represented:

LICENSED
College
University of Arkansas School o
Howard University School of M
Emory University School of M
University of Georgia Medical
Tulane University of Louisiana
Baltimore Medical College......
University of Michigan Medical
University of Cincinnati College
Vanderbilt University School of
Licentiate and Member of the R
London, and the Royal Coll. of

LICENSED
College
Harvard University Medical Sch

104, in the bladder 104.1, in the posterior rectal wall 104, and in the cervix 112. As Pelouze states that cultures of gonococci will survive at 113 F. for thirty minutes, surely 130 should kill the gonococcus instantaneously, but the gonococcus does not remain latent in the vagina.

Gonorrhea persists in women largely because of the continued presence of the gonococcus in the para-urethral, the cervical and the endocervical glands. As the authors clearly state that the surrounding tissue is never heated above 112, it is fair to presume that the benefit derived from the long continued heat is due to a stimulation of the patient's local defensive mechanism (histiocytes and polymorphonuclear leukocytes), which destroy the gonococcus, rather than a direct thermic effect.

INFECTED URETHRAL FOLLICLES

To the Editor:—I have two patients with chronic urethritis whose only symptoms are large and heavy shreds and filaments in the first portion of the urine. One did not have sufficient treatment during the acute stage and the other had none at all, about a year ago. There is no discharge, the prostatic infection cleared up under treatment, and there are no subjective complaints. Instillations, sounds, and urethroscopy were applied and consultants were asked; still the condition shows no improvement. The textbooks all state that this condition is caused by the devitalized mucous membrane, but none of them offer a specific therapy. *Please omit name.*

M.D., New Jersey.

Answer.—Assuming, as the correspondent states, that the prostatic infection has been cleared up, the persistence of the shreds is probably due to the presence of either granulations or infected urethral follicles. This can best be determined by a careful urethroscopic examination. If the cause is infection in the urethral follicles, they should be destroyed with the high-frequency spark, and if due to granulations, they may be treated in the same manner.

BIRTH OF ONE CHILD AFTER TWIN MISCARRIAGES

To the Editor:—In "Merrily I Go to Hell—Reminiscences of a Bishop's Daughter," by Mary Cameron (Brentano's, 1931) this statement is made: "Three months before I was born, my mother miscarried a boy baby and at the appointed time I made my unethical appearance." To what extent is one justified in believing this?

H. G. Bull, M.D., Ithaca, N. Y.

Answer.—This statement can be true because occasionally *a fetus is expelled during the early months of pregnancy, and* a few months later a normal full-term child is born. Usually, of course, when one fetus of twins is expelled prematurely the other one follows shortly afterward. It is also usual, when one of twins or triplets dies in utero, for it to remain within the uterus until term. At that time when the full-term normal child or children are born, the dead fetus is expelled. At this time it presents the appearance of a flattened, dried, shriveled fetus much smaller than the living children and it is known as a fetus compressus or fetus papyraceus.

PRESCRIPTION OF POTASSIUM IODIDE

To the Editor:—Will potassium iodide act the same as sodium iodide? If so, please write a prescription that will contain potassium iodide 10 drops and belladonna 5 drops. *Please write prescription in drops, grams and ounces.*

Carl J. Snitkay, M.D., Belle Plaine, Iowa.

Answer.—Potassium iodide has the same effect as sodium iodide. *Assuming that the prescription desired is to contain* 0.6 Gm. (10 grains) of potassium iodide and 0.3 cc. (5 minims) of tincture of belladonna, it would be written as follows:

<table>
<tr><th></th><th></th><th>Gm. or Cc.</th><th></th></tr>
<tr><td>℞</td><td>Potassium iodide ....</td><td>15|</td><td>ʒ v</td></tr>
<tr><td></td><td>Tincture of belladonna................</td><td>7|5</td><td>ʒ iiss</td></tr>
<tr><td></td><td>Compound tincture of cardamom.......</td><td>5|</td><td>ʒ iss</td></tr>
<tr><td></td><td>Diluted alcohol...............to make</td><td>100|</td><td>℥ iv</td></tr>
</table>

M. *Label:* Teaspoonful in water three times a day after meals.

STERILITY PRODUCED BY ROENTGEN RAY

To the Editor:—You publish a physician's question regarding temporary sterility produced by the roentgen ray (The Journal, October 10, p. 1095). Your answer refers the correspondent to a skilled roentgenologist who has had experience with temporary roentgen castration. May I call your attention *to the fact that at present nobody has this experi*ence. There are reasons to believe that the consequences of temporary roentgen sterilization may manifest themselves no sooner than in the second generation, which means the offspring of the patient's children. *Pending the* decision of this question, I feel we should follow Martius of Germany, who advises either permanent roentgen sterilization or none at all (*Strahlentherapie* **41:** 47 [June 13] 1931).

Siegfried W. Westing, M.D., Brooklyn.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board of Obstetrics and Gynecology: *Clinical.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

American Board for Ophthalmic , Dec. 21. Sec., Dr. Wm. H. Wilder, 122 S. Mic

California: *Reciprocity.* Los Ange Dec. 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Connecticut: *Endorsement.* Hartford, Nov. 24. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden.

Delaware: *Regular and Homeopathic.* Wilmington, Dec. 8-10. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington.

District of Columbia: Washington, Dec. 29-30. Sec., Dr. W. C. Fowler, District Building, Washington.

Florida: Jacksonville, Nov. 23-24. Sec., Dr. Wm. M. Rowlett, 812 Citizens Bank Bldg., Tampa.

Kansas: Kansas City, Dec. 8. Sec., Dr. C. H. Ewing, Larned.

Kentucky: Louisville, Dec. 1-3. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville.

Maryland: *Regular.* Baltimore, Dec. 8-11. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore. *Homeopathic.* Dec. 17-18. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

Nebraska: Lincoln, Nov. 23-24. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

North Carolina: *Endorsement.* Raleigh, Dec. 7. Sec., Dr. John W. MacConnell, *Davidson.*

Ohio: Columbus, Dec. 8-10. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus.

Tennessee: Memphis, Dec. 18-19. Sec., Dr. Alfred B. DeLoach, Medical Arts Bldg., Memphis.

Utah: Salt Lake City, Dec. 1-2. Dir., Mr. S. W. Golding, 412 State Capitol Building, Salt Lake City.

Virginia: Richmond, Dec. 8. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

West Virginia: Morgantown, Nov. 19-21. Sec., Dr. W. T. Henshaw, Charleston.

Wisconsin: *Basic Science.* Milwaukee, Dec. 19. Sec., Prof. Robert N. Bauer, 3414 West Wisconsin Ave., Milwaukee.

Arkansas Eclectic Report

Dr. Claude E. Laws, secretary, Arkansas Eclectic Board of Medical Examiners, reports the written examination held May 12-13, 1931. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. One candidate was examined and passed. The following college was represented:

College PASSED	Year Grad.	Per Cent
Kansas City College of Medicine and Surgery.........	(1922)	94.5

Georgia June Examination

Dr. B. T. Wise, secretary, Georgia State Board of Medical Examiners, reports the written examination held at Atlanta and Augusta, June 10-11, 1931. The examination covered 10 subjects and included 100 questions. An average of 80 per cent was required to pass. Sixty-eight candidates were examined, *all of whom passed. The following colleges were represented:*

College PASSED	Year Grad.	Per Cent
Howard University School of Medicine..............	(1931)	90.2, 90.4
Emory University School of Med....(1930) 86.5, 94.7,	(1931)	89.4, 89.8, 90, 90.1, 90.3, 90.5, 90.8, 90.9, 90.9, 90.9, 91, 91.1, 91.9, 92.1, 92.1, 92.2, 92.3, 92.3, 92.7, 92.8, 92.8, 92.9, 93.4, 93.5, 93.6, 93.8, 93.9, 94.5, 94.7, 95.1
University of Georgia Medical Department...........	(1931)	88.5, 89.7, 89.7, 90.1, 90.6, 90.7, 90.8, 91.1, 91.7, 92, 92.2, 92.2, 92.4, 92.5, 92.7, 92.7, 92.7, 92.9, 92.9, 93.1, 93.2, 93.3, 93.8, 94, 94.2
Rush Medical College..............................	(1931)	94.5
Meharry Medical College...........................	(1929)	88.4, (1930) 89.5, (1931) 88.3, 88.6, 88.7, 88.8, 89.4
University of Edinburgh Faculty of Medicine.........	*(1929)*	*94.5*

Dr. Wise also reports 10 physicians licensed by reciprocity with other states and one physician licensed by endorsement from Feb. *23* to Aug. *31, 1931.* The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine...........	(1929)	Arkansas
Howard University School of Medicine...............	(1929)	Ohio
Emory University School of Medicine................	(1930)	W. Virginia
University of Georgia Medical Department...........	(1927)	Missouri
Tulane University of Louisiana School of Medicine..	(1920)	Louisiana
Baltimore Medical	(1905)	Dist. Colum.
University of Michi .	(1924)	Michigan
University of Cincin .	(1925)	Ohio
Vanderbilt Universit .	(1924)	Louisiana
Licentiate and Meml London, and the Royal Coll. of Surgs., England....	(1908)	Nevada

College LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School.................	(1928)	N. B. M. Ex.

treatment of pulmonary tuberculosis is exhaustively presented. This is the most valuable portion of the volume. The other pulmonary diseases are less exhaustively dealt with. The chapter on actinomycosis is disappointing. The cutaneous test and the agglutination test are not even mentioned. Otherwise, the volume is up to the high standard expected of such a master as Sauerbruch. The volume contains an enormous mass of valuable information presented in a beautiful manner. The text is enhanced by numerous photographs of actual cases, roentgenograms, and wash drawings. The latter are often partly in color and these are used particularly in explaining the details of operative procedures and make these extremely clear. This completes volume I, a most valuable addition to the literature on chest surgery, which should be available to all who are working seriously in that field. It is the largest and most scholarly presentation of chest surgery that has yet appeared in any language.

The Home Care of the Infant and Child. By Frederick F. Tisdall, M.D., M.R.C.S., L.R.C.P., Attending Physician, Hospital for Sick Children, Toronto. Cloth. Price, $3. Pp. 292, with 58 illustrations. New York: William Morrow & Company, 1931.

This is one more book added to the large number available on the subject of the home care of the infant and child. The success that such a book may have depends on the simplicity of presentation and the extent to which the material holds the mother's interest. Its usefulness depends on the explicit nature of the procedures outlined and the instructions given. The illustrations play a great part in stressing the important points on the mother's mind. This book meets all these requirements. The illustrations are clear and the material is written in a simple style. The instructions given are explicit. It has some interesting material well presented concerning the behavior problems and the play life of the child.

Chirurgie du rectum. Par Henri Hartmann, professeur honoraire à la Faculté de médecine de Paris. *Trauvaux de chirurgie.* Huitième série. Paper. Price, 75 francs. Pp. 398, with 161 illustrations. Paris: Masson & Cie, 1931.

This book is a modernization of the book on diseases of the rectum published by Quénu and Hartmann in 1895. Throughout the text the reader is impressed with the sound pathologic-anatomic background. Disease processes are clearly defined and consequently the diagnosis of some of the more obscure infectious processes observed in the rectum is made more obvious, as in the chapters on fistula in ano and strictures of the rectum. The author makes a practical suggestion in the treatment of bilateral ischiorectal abscesses, which if opened laterally to the anus result in a horseshoe fistula because of the fact that almost all these bilateral abscesses originate on the posterior wall of the rectum from a single lesion (injury or ulcer). With this pathologic-anatomic fact in mind, Hartmann suggests that the abscesses be drained by dividing the sphincter in the posterior line. This allows free drainage of both ischiorectal fossae and precludes the development of a complicated fistula. In like manner, pathologic processes underlying stricture of the rectum are considered. Of 120 cases of so-called venereal stricture, 43 were undoubtedly syphilis. Almost all the different methods of treatment of this condition are reviewed with a conclusion that traumatic dilation is useless and that colostomy is the best treatment in advanced cases. The chapter on cancer of the rectum is encyclopedic in that a critical review of most operative procedures for removal of the cancer is given. The author's own preference of operations is not in accord with the view of most surgeons of the day. In general the book is valuable and represents the experience in this field of one of the most experienced surgeons in France.

Breast-Feeding. By Margaret Emslie, M.B., Ch.B., Medical Officer, Southfields Centre. Cloth. Price, $2. Pp. 142, with illustrations. New York: Oxford University Press, 1931.

There is no doubt about the value of breast feeding for the health of the baby, as well as that of the mother. There are numerous causes for failures in breast feeding, many of which can be avoided. In this book the management of breast feeding and the difficulties encountered are thoroughly discussed. The anatomy and physiology of the breast and the abnormal conditions that may develop during breast feeding are also given consideration. In the appendix is a discussion of sore nipples and their treatment.

Die skrofulöse Augenentzündung. Von Prof. Dr. A. Siegrist, Direktor der Universitäts-Augenklinik Bern. Paper. Price, 8 marks. Pp. 68, with 36 illustrations. Berlin: Urban & Schwarzenberg, 1931.

This booklet deals exclusively with the condition known in this country as phlyctenular ophthalmia, which name the author objects to as not being as significant as "scrofular." In the preface he states that this is not a chapter from one of the large handbooks but rather an isolated work dealing with the condition largely from a clinical standpoint. Etiologically, he emphasizes that "the disease has as its basis scrofulosis, which is an individualistic type of tuberculosis in the allergic stage; but in order that scrofulosis may produce the multifold types of ocular manifestations, it is necessary that there be added exciting factors, mostly in the form of exogenous irritations of diverse character." But in describing the pathologic anatomy he states that in the fresh cases neither tubercle bacilli nor other micro-organisms have ever been found, nor has it been possible to find tubercle bacilli in experimentally produced phlyctenules. The clinical descriptions are short but good, and sufficient space is devoted to the therapy, both local and general. The black and white illustrations are mostly facies and periocular skin lesions, while the colored illustrations demonstrate the ocular lesions of phlyctenular ophthalmia. The latter are good except that the reds and yellows are a little too pale. For one practicing in a community where phlyctenular disease abounds, much good can follow a careful perusal of the booklet.

Dynamic Retinoscopy. By Margaret Dobson, M.D., Ophthalmic Surgeon to the New Sussex Hospital for Women, Brighton. Cloth. Price, $2.50. Pp. 56, with 11 illustrations. New York: Oxford University Press; London: Humphrey Milford, 1931.

The author presents the fundamentals of dynamic retinoscopy in contrast to static retinoscopy in a brief but concise manner. The various types of retinoscopes, both American and English, are minutely described and their advantages and disadvantages commented on. The author's dynamic retinoscope is given particular emphasis. It consists of a typical electric retinoscope with a small revolving disk which contains various small figures and letters electrically illuminated by a special device and situated just below the reflecting mirror, and is the object which the patient fixes on when the presbyopic error is estimated. The various heterophorias and the tests for them are thoroughly explained, although there is nothing new offered as to their treatment. Considerable emphasis is placed on the differentiation between accommodation and convergence. Dynamic refraction differs from static refraction in that it is a method of examination for measuring the refraction of an eye, by means of a shadow test, with some convergence and accommodation in force. The author states that the object of dynamic retinoscopy is to bring about a binocular adjustment between accommodation, accommodative convergence, and fusional convergence, which results in easier and better vision by producing a balance from the standpoint of innervation, which she believes is not taken into account in static retinoscopy.

Documents pour servir à l'étude de la vaccination préventive de la tuberculose par le B C G en France. Institut Pasteur, laboratoires de recherches sur la tuberculose. Deuxième enquête: Janvier-Mars, 1931. Paper. Pp. 124. Paris: Masson & Cie, 1931.

This pamphlet contains an introductory outline of the history of B C G, which will prove useful to those who have not followed the original literature and frequent reviews on this subject. It is frankly argumentative and propagandist, with admitted bias. The opening chapters are followed by brief documents from the several departments of France indicating the extent to which B C G has been used. Many of these are supplemented by short favorable quotations from those who have administered the vaccine. Not a few of these emanate from midwives, and all are of the testimonial type in disrepute in this country. They will not be taken seriously by a scientific reader, except as evidence of widespread and genuine good will toward the method in France. The tabulated material indicates the extent of usage in France rather than success of the method. In the six pages devoted to recording the success in other countries, the figures for mortality in the nonvaccinated as compared with the vaccinated are impressive, but the records are much too brief for critical analysis. Presumably this will be supplemented by other reports.

sional intern who sees in the child a sort of impersonal object from which to extract a maximum of experience; or even more with that anachronous modern representative of the laws of the Medes and the Persians, the inflexible hospital rule, or routine. In her present state of mind the mother accepts the good as the natural course of events; she finds it hard to grasp what seem to her inexplicable deviations from the usual human conduct to which she is accustomed when in trouble.

There is a deeper reason. The mother who brings her child to the hospital knows little, or nothing, often less than nothing, about medicine or disease or the mortality rate of the present illness, and the whole world centers for the time being about that one child and his illness. Before coming to the hospital she has had the deep sympathy, freely expressed, of her friends and relatives, and her family doctor has also been the kind and sympathetic friend who has sought intelligibly to lessen the pangs of fear and uncertainty by wise and thoughtful information as to the real status of things. If she still has the optimism of inexperience she will perhaps expect an equally sympathetic and responsive reaction and an immediate, obviously adequate attention to this most important matter now before the world. Abruptly thrust from one environment into the other she will often feel that chilling, paralyzing, feeling of aloneness, of inferiority, of insignificance and helplessness that grips many of us in the presence of a new, strange, large and highly organized and routinized environment, as she faces instead of the warm, sympathetic, responsive, individual, personal human heart, that she has known up to this time, the collective, impersonal, mechanical, seemingly unfeeling, routine institutional heart. A sort of fatalistic emotion possesses her—the fate of her child lies "in the laps of the gods" and they do not seem adequately, personally, humanly impressed with the necessity of doing everything just right and, even more important, at just the right time. There are many strange and diverse activities on all sides that seem utterly to ignore her presence and that make her fear that somewhere her child may fall in between the parts of a system that does not seem perfectly organized for her immediate needs. It is at just this point that a little kindly assurance that all is proceeding in orderly fashion will go a long way to humanize the institution.

The real crux of the matter lies in still another direction. "Use does breed a habit in a man." Surrounded by sickness and suffering on all sides we get used to it and pursue the usual "tenor of our way" much as if they did not exist. What to us is a natural and necessary adaptation to such an environment may to an anxious parent who has but one interest seem callousness and indifference. Early in my practice I nearly lost a most important and much needed family because the father peeked through the door of the operating room and saw me smiling at something while his child was having her tonsils removed. If I had known he was looking I would not have smiled. In his Ars Poetica somewhere Aristotle laid down as a fundamental law that the effect of the drama lies in its ability to make the hearer imagine himself in the place of the character portrayed. It seems to me that that thought can fruitfully be transplanted to the present theme. Most of us at one time or another, in the presence of sickness in some one near to us, have suddenly been gripped by the fear that "perhaps this is one of those cases that ends wrong." Does not nearly every mother, every father, who bring their child to a hospital for nearly any illness, have that feeling in nearly every instance? Do they not feel it even more keenly than we under like circumstances, because, as one mother once said to me, "You at least know something about what to expect—we know nothing and can only expect the worst." That her reasoning was perhaps not wholly founded on a rock is attested by the well known traditional reaction of doctors and ex-nurses when their own children are sick. We cannot wear our hearts on our sleeves, we cannot and must not feel as deeply as she does the mother's fear and anxiety, and yet it does seem a strange inconsistency that we weep over the fictitious tragedies of the novel, the stage and the movie, while the stark tragedies of real life by which we are surrounded at all times in the hospital seem to touch a less quick, less responsive and less obvious chord. The whole world rises in spontaneous sympathy and the resources of nations are mobilized to save a man who lands on an ice floe in the arctic, or in some unknown place in the sea, or is caught in a cave in Kentucky. Is not a mother entitled to the same feeling of assurance, when her child's life seems at stake, that all the resources of the hospital are visibly and evidently marshaled for that one supreme event? Has she not a right to expect at least as sympathetic, cordial and personal attention in a hospital as she gets in a hotel, a store, a movie or a gasoline station, where only a room and board, an hour's entertainment, and perhaps a bargain are at stake? Only too often if she demands what to her seems perfectly evidently her right to demand she will find that in some hospitals "the customer is not always right." The anxious mother, instinctively fighting the age-old biologic fight for her young, will sometimes find herself dubbed a "fussbudget" in the hospital.

If what I have said represents in some measure a true situation, what is the remedy? I would sum it all up in one word—"tradition." There are hospitals of which it is traditional that kindliness, attentiveness, thoughtfulness, flexibility in its conduct, and an evident spirit of cooperation and of service prevail throughout. There are others in which an obviously impersonal and inflexible chilling routine obtrudes itself. As Cushing has so well said, "hospitals have personalities." A very human clinician once told me how different he felt now about medical procedures than he did as an intern in one hospital in which he did the most daring things in a perfectly impersonal cold-blooded manner that he would not think of doing now as attending physician in another hospital unless absolutely necessary. In each instance he merely reflected the traditions, the personalities, of the hospitals in which he worked. Doubtless, too, a wife and a baby and the personifying, humanizing influence of private practice had much to do with it. I know of a hospital that in no other way rises above many others, of which I was recently told from an authoritative source that patients left it more satisfied and enthusiastic than from any other hospital within the knowledge of my informant. From personal contact with that institution I can understand that reaction. The superintendent of the hospital and the head of the training school not only show, but have, a personal interest in the patients and their comfort, make rounds to make sure that all is well, even call on some of them and say a few words in selected cases. I am not advocating this practice; I am merely recording a fact. I am inclined to think, however, that the swivel chair sometimes serves best if at times unoccupied.

I cordially dislike the idea of "setting a good example." It was the Pharisees who prayed aloud in public that they might be seen and heard. The right man and the right woman in the high places do not *set* a good example; they *are* a good example and they radiate a beneficent influence because they do not assume, but *have*, a human interest in the human side of the hospital. The individual is the force that molds traditions, be he superintendent, medical chief, head of the training school, a dominant clinician, a resident, or a member of the board of trustees or of the women's board. Dr. Abt has characteristically expressed this at one of our former meetings: "The administrative heads of a hospital are largely responsible for maintaining the atmosphere and morale of the institution. If the atmosphere is one of cheerfulness, kindness and cooperation, nearly every member of the organization will be inoculated by this spirit which flows from the high points." The medical chief is in an analogous position. The clinician who is human and personal and not merely medical, who always has time to say a reassuring word to the mother and to the patient, who ing his counsel in the conduct of a case on the result of which his life depended.

The General Code of Ohio, section 13442-5, provides:

> In any case where a defendant waives his right to trial by jury and elects to be tried by the judge of such court as provided in the next preceding section, any judge of the court in which such cause is pending shall have jurisdiction to proceed with the trial of said cause, and shall proceed to hear, try and determine such cause in accordance with the rules and in like manner as if such cause were being tried before a jury.

The preceding section of the General Code, to which reference is made, provides that the defendant shall have the right to waive a trial by jury and may, if he so elects, be tried by the court without a jury. These sections are mandatory and do not confer power on the court to reject the waiver, unless suggestion of present insanity is made by counsel for the accused or notice of such insanity comes otherwise to the court. If it be suggested by counsel for the accused, or it otherwise comes to the notice of the court, that the accused is not then sane, the court or jury must determine that issue under section 13441-1 of the General Code of Ohio, before the accused is placed on trial for the offense of which he is charged. If insanity exists, such an inquiry should, if possible, take place before completing the costly and intricate proceedings of a criminal trial. If the trial court regarded the representations of counsel for the accused as a suggestion or notice of present insanity, the course of the court was charted by the provisions of the code just stated. If the court did not regard such representations as amounting to a suggestion or notice of insanity, the course of the court was indicated by the provisions of the code giving the accused the right to waive a jury trial. Viewed in either aspect, the trial court committed an error. The judgment of the court of appeals, Ashtabula County, reversing the conviction and remanding the case for a new trial was affirmed.

Eugenic Sterilization Statute Valid

(Clayton v. Board of Examiners of Defectives (Neb.), 234 N. W. 630)

Clayton, about 22 years old, was an inmate of the Nebraska institution for the feebleminded. The state board of examiners of defectives found that, while he appeared to be physically normal, his mentality was such that he could not progress beyond the third grade in school and that his "intelligence quotient" was only 40 per cent. He was rated as a high grade imbecile. Clayton had two brothers and two sisters, one brother and one sister being inmates with him of the institution for the feebleminded. The examining physicians, who comprised the board of examiners of defectives, concluded that Clayton's feeblemindedness was congenital and that his offspring, if any, would inherit about the same degree of mentality that he possessed.

The law of Nebraska provides:

> It shall be the duty of the board of examiners to examine into the innate traits, the mental and physical conditions, personal records and the family traits and histories of these inmates (of the institutions for the feebleminded, the hospitals for the insane and other named institutions), and if after a careful examination and investigation, such board of examiners find that such inmate is feebleminded or insane or is an habitual criminal, moral degenerate or sexual pervert, that such inmate is capable of bearing or begetting offspring, that children born or begotten by such inmate would inherit a tendency to feeblemindedness, insanity, degeneracy or criminality, that such children would probably become a social menace and that procreation by such inmate would be harmful to society and that such inmate should not be paroled or discharged, as the case may be, unless sterilized, then in every such case it shall be a condition prerequisite to the parole or discharge of such inmate, that said inmate be made sterile, and that such operation be performed for the prevention of procreation as in the judgment of said board of examiners would be most appropriate to each individual case.

Under authority of the statute, the board of examiners ordered that Clayton be sterilized. Clayton appealed to the district court, attacking the constitutionality of the statute. The district court, however, affirmed the order of the board, and affirmed, too, the constitutionality of the statute so far as it related to the sterilization of feebleminded persons such as the petitioner, construing the act, however, to limit sterilization to vasectomy or salpingectomy. By implication, so much of the statute as calls for the castration of male inmates convicted of rape, incest, or crimes against nature was believed by the court to be unconstitutional. Clayton thereupon appealed to the Supreme Court of Nebraska.

The Supreme Court quoted with approval the decision of the Supreme Court of Virginia in *Buck* v. *Bell*, 143 Va. 310, 130 S. E. 516, 519, affirmed by the U. S. Supreme Court, 274 U. S. 200, 47 Sup. Ct. 584, with respect to a similar statute, as follows:

> The act is not a penal statute. The purpose of the Legislature was not to punish but to protect the class of socially inadequate citizens named therein from themselves, and to promote the welfare of society by mitigating race degeneracy and raising the average standard of intelligence of the people of the state.

The court quoted also, with approval, *State* v. *Feilen*, 70 Wash. 65, 126 P. 75, holding that, in the case of one convicted of rape, vasectomy is not a cruel punishment. The Supreme Court of Nebraska was of the opinion that vasectomy, as applied to a feebleminded person, does not come within the constitutional inhibition against cruel and unusual punishment and concluded:

> The legislative act before us is in the interest of the public welfare in that its prime object is to prevent the procreation of mentally and physically abnormal human beings. We think it is within the police power of the state to provide for the sterilization of feebleminded persons as a condition prerequisite to release from a state institution.

The judgment of the district court affirming the order of the board of examiners of defectives was affirmed.

Workmen's Compensation Acts: Perforation of Duodenal Ulcer Following Strain.—The employee, September 9, suffered severe pain from lifting a heavy ore car. He continued work until September 11, when he attempted to pull a bell rope and collapsed. He was assisted to his home, and the following day removed to a hospital. Subsequently he was taken to another hospital, where he died, September 15. An autopsy established the cause of death as peritonitis following a perforation of a duodenal ulcer. The autopsy showed, too, several other duodenal ulcers partially healed. The sole question was whether the admitted cause of death, the perforation of the ulcer, was a result of muscular exertion in the course of employment. That the perforation of the ulcer, said the Supreme Court of California, was the cause of death was not doubted. Whether this perforation occurred as a result of muscular strain or wholly apart from the employee's occupation was purely a matter of expert opinion. No direct evidence on this point was available. The evidence before the industrial accident commission permitted the inference that the rupture was the normal result of the continuous process of ulceration. The commission weighed the various opinions and concluded that the evidence failed to establish that the death was caused or accelerated by injury arising out of and in the course of employment. On this record, concluded the Supreme Court of California, the conclusion of the industrial accident commission must be accepted.—*Brandon v. Industrial Accident Commission (Calif.), 294 P. 1064.*

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ing his counsel in the conduct of a case on the result of which his life depended.

The General Code of Ohio, section 13442-5, provides:

> In any case where a defendant waives his right to trial by jury and elects to be tried by the judge of such court as provided in the next preceding section, any judge of the court in which such cause is pending shall have jurisdiction to proceed with the trial of said cause, and shall proceed to hear, try and determine such cause in accordance with the rules and in like manner as if such cause were being tried before a jury.

The preceding section of the General Code, to which reference is made, provides that the defendant shall have the right to waive a trial by jury and may, if he so elects, be tried by the court without a jury. These sections are mandatory and do not confer power on the court to reject the waiver, unless suggestion of present insanity is made by counsel for the accused or notice of such insanity comes otherwise to the court. If it be suggested by counsel for the accused, or it otherwise comes to the notice of the court, that the accused is not then sane, the court or jury must determine that issue under section 13441-1 of the General Code of Ohio, before the accused is placed on trial for the offense of which he is charged. If insanity exists, such an inquiry should, if possible, take place before completing the costly and intricate proceedings of a criminal trial. If the trial court regarded the representations of counsel for the accused as a suggestion or notice of present insanity, the course of the court was charted by the provisions of the code just stated. If the court did not regard such representations as amounting to a suggestion or notice of insanity, the course of the court was indicated by the provisions of the code giving the accused the right to waive a jury trial. Viewed in either aspect, the trial court committed an error. The judgment of the court of appeals, Ashtabula County, reversing the conviction and remanding the case for a new trial was affirmed.

Eugenic Sterilization Statute Valid

(Clayton v. Board of Examiners of Defectives (Neb.), 234 N. W. 630)

Clayton, about 22 years old, was an inmate of the Nebraska institution for the feebleminded. The state board of examiners of defectives found that, while he appeared to be physically normal, his mentality was such that he could not progress beyond the third grade in school and that his "intelligence quotient" was only 40 per cent. He was rated as a high grade imbecile. Clayton had two brothers and two sisters, one brother and one sister being inmates with him of the institution for the feebleminded. The examining physicians, who comprised the board of examiners of defectives, concluded that Clayton's feeblemindedness was congenital and that his offspring, if any, would inherit about the same degree of mentality that he possessed.

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American Journal of Physical Therapy, Chicago

8: 181-204 (Oct.) 1931

Practical Application and Usage of Quartz Ultraviolet Radiation. E. W. Erickson, Chicago.—p. 181.
Preparation of the Patient. A. T. Noe, Santa Barbara, Calif.—p. 185.

American Journal of Public Health, New York

21: 1091-1188 (Oct.) 1931

Training for the Public Health Engineer. S. C. Prescott, Cambridge, Mass.—p. 1091.
Training of Health Department Personnel. J. A. Ferrell, New York.—p. 1099.
Sanitary Control of Shellfish in State of Washington. H. W. Nightingale, Seattle.—p. 1107.
Western State Boards of Health. P. W. Covington, Salt Lake City, Utah.—p. 1112.
Studies on Self-Disinfecting Power of Skin. J. F. Norton and Marguerite F. Novy, Detroit.—p. 1117.
Report on Thirty-One Strains of B. Dysenteriae Sonne Isolated During Epidemic in Rochester. Alice D. Leahy, Rochester.—p. 1126.
Wassermann Reactions in College Students. H. S. Diehl, Minneapolis.—p. 1131.

Archives of Neurology and Psychiatry, Chicago

26: 687-904 (Oct.) 1931

Raynaud's Disease: Evidence That It Is a Type of Vasomotor Neurosis. S. L. Simpson, G. E. Brown and A. W. Adson, Rochester, Minn.—p. 687.
Cerebral Circulation: XIV. Respiratory Quotient of Brain and of Extremities in Man. W. G. Lennox, Boston.—p. 719.
Id.: XV. Effect of Mental Work. W. G. Lennox, Boston.—p. 725.
Id.: XVI. Changes in Human Retinal Circulation and in Pressure of Cerebrospinal Fluid During Inhalation of Mixture of Carbon Dioxide and Oxygen. S. Cobb and F. Fremont-Smith, Boston.—p. 731.
Id.: XVII. Cerebral Blood Flow and Vasomotor Response of Minute Vessels of Human Brain to Histamine. Soma Weiss and W. G. Lennox, Boston.—p. 737.
Classification of Gliomas and Neuroglia Cell Types. W. Penfield, Montreal.—p. 745.
Neuro-Anatomy in Respiratory Failure: Two Cases. K. H. Finley, New Haven, Conn.—p. 754.
Grasping Reflex in New-Born Monkey. C. P. Richter, Baltimore.—p. 784.
Neurons of Sensory Type in Ventral Roots of Man and of Other Mammals. W. F. Windle, Chicago.—p. 791.
Anatomic Variations of Cranial Venous Sinuses: Their Relation to Effect of Jugular Compression in Lumbar Manometric Tests. E. A. Edwards, Boston.—p. 801.
Schizophrenic Psychoses: Critical Considerations of Psychoanalytic Treatment. F. Alexander, Chicago.—p. 815.
Blood-Cerebrospinal Fluid Barrier in Manic-Depressive Psychosis: Ratios of Distribution of Bromide, Calcium, Sugar and Chlorides. D. Rothschild, Foxboro, Mass., and W. Malamud, Iowa City.—p. 829.

Canadian Medical Association Journal, Montreal

25: 385-518 (Oct.) 1931

Health Insurance. H. McPhedran, Toronto.—p. 385.
*Study of Enzymes of Stools in Intestinal Intoxication. F. G. Banting, S. Gairns, J. M. Lang and J. R. Ross, Toronto.—p. 393.
Effect of Peritoneal Adhesions on Urinary Tract. F. S. Patch and M. D. Evans, Montreal.—p. 399.
Intrathoracic Neoplasms. A. A. Rowan, Ste. Anne de Bellevue, Que.—p. 401.
*Three Years' Experience with Vaccination Against Common Cold. R. V. Ward, Montreal.—p. 408.
*Vitamin A and Common Cold. H. P. Wright, J. B. Frosst, F. Puchel and Margaret R. Lawrence, Montreal.—p. 412.
*Notes on New Cases of B. Dysenteriae Sonne Infection. Marion M. Johnston and A. Brown, Toronto.—p. 417.
Some Clinical Aspects of Disproportion in Obstetrics. L. C. Conn, Edmonton.—p. 419.
*Focal Infection. D. Graham, Toronto.—p. 422.
*Heart Conditions Simulating Acute Abdominal Symptoms. G. R. Burns, Halifax.—p. 424.
*The Prostatic Problem. J. H. Cunningham, Boston.—p. 428.
Vaccine Treatment of Chronic Arthritis. A. E. Vipond, Montreal.—p. 432.
Common Factors Influencing Surgical Mortality. J. D. McEchern, Winnipeg.—p. 435.
Case of Thrombo-Angiitis Obliterans Treated by Bilateral Lumbar Sympathetic Ganglionectomy. E. H. Wood, Peterborough.—p. 438.
Chronic Nasopharyngitis and Chronic Bronchial Infection. W. W. Priddle, Toronto.—p. 441.
Exploration of Abdomen by Roentgen Rays. C. W. Prowd, Vancouver.—p. 444.

Intestinal Intoxication.—Banting and his associates found that after digestion was established in a normal infant the stools contained large amounts of trypsin, amylase and lipase. The trypsin content of the stools of infants suffering from intestinal intoxication was decreased in proportion to the severity of the case. In very young infants the curves were lower than in older children. When the case of intestinal intoxication was complicated by bronchopneumonia, mastoid or other focal infections, the clinical condition became worse, usually without a corresponding decrease of trypsin. The low trypsin content was not a terminal condition, since the stools of children dying of other diseases had a normal trypsin content until death. The lipase and amylase content of the stools did not correspond exactly to the trypsin content. In general, a low trypsin content was always accompanied by a low amylase and lipase content, but with a high trypsin the amylase and lipase might be either high or low. Of the three enzymes studied, trypsin seemed to give the best indication as to the severity of the disease. The original hypothesis was that the serum in the lumen of the bowel inhibited the action of trypsin, thus causing intestinal intoxication. However, it was shown that in this disease there is also a decrease in the amylase and lipase of the stool, and since the action of these enzymes is not inhibited by raw serum, the original theory is untenable. The inference is that in intestinal intoxication the pancreas fails to produce its normal quantity of enzymes. At the present time it is impossible to state whether this is a cause or an effect of the disease.

The Common Cold.—After preliminary trials Ward gave a large group of Montreal factory employees inoculations over a period of two years with stock vaccines designed to prevent the occurrence of acute respiratory disorders. Care was taken to select those people who had had a bad record of trouble from these disorders. Over a period of four months careful records were kept of the time these people lost from pneumonia, bronchitis, influenza, colds and tonsillitis, and their record was compared with that of a control group consisting of all the other employees in the factory. In 1929-1931, although there were fewer absences among the vaccinated group, the number of days lost per hundred in this group was slightly greater than in the control group. A few irritating but no serious reactions or results occurred. Most of those inoculated seemed to feel that they had been benefited. The author believes it is perfectly clear that the stock vaccines used cannot in any sense be considered a sure and specific preventive of acute respiratory disorders in the dosage used. That they do benefit a large percentage of people is apparent from the fact that the absenteeism of a group of people who are habitual sufferers from respiratory troubles can be reduced to a point below that of a control group. There are apparently a good many individuals on whom the vaccine has no effect whatever.

Vitamin A and Common Cold.—Wright and his associates supplied twenty infants over a period of months with large amounts of vitamin A. Forty infants under exactly similar circumstances were supplied with the amount of vitamin A usually given to normal infants. No appreciable difference was found in the incidence to infection of the upper respiratory tract in the two groups. Therefore, it is concluded that vitamin A in excessive amounts does not protect infants against respiratory infection.

B. Dysenteriae Sonne Infection.—Twenty strains of B. dysenteriae Sonne were isolated by Johnston and Brown from the stools of 175 infants and children who were admitted to a hospital for sick children during a period from October, 1928, to June, 1930. The symptoms presented by these children were usually diagnosed clinically as acute intestinal intoxication, infectious or fermentative diarrhea, or dysentery. In addition, two strains were obtained from infants with pyelitis. The clinical data relative to the patients from whom these strains were cultivated and the biologic and serologic reactions of the strains have been reported. The authors present in brief form relevant data regarding the source of thirty additional strains isolated since June, 1930, together with certain facts concerning the clinical manifestations occasioned by infection with B. dysenteriae Sonne. B. dysenteriae Sonne appears to be the etiologic factor in gastro-intestinal disturbances during the epidemic diarrhea season as well as during colder months of the year. Infections were especially numerous and serious among infants under 2 years of age; they also occurred in children over that age limit, and in adults. The infant cases were severe with sudden onset or were mild when the infection group of experiments in which the quantity of glutamic acid and iron needed for the relief of milk anemia has been studied have been reported and discussed.

Rôle of Copper in Hemoglobin Regeneration.—According to Keil and Nelson, nutritional anemia is readily produced in rats on a whole milk diet. Pure iron as ferric chloride when added to milk collected in glass does not cause regeneration of hemoglobin. Salts of vanadium, titanium, manganese, nickel, arsenic, germanium, zinc, chromium, cobalt, tin and mercury also failed to stimulate regeneration of hemoglobin when added to milk, collected in glass, and supplemented with pure iron as ferric chloride. Copper was the only element tested which had a positive effect on hemoglobin building. Reproduction was obtained on milk and iron as ferric chloride by the sole addition of copper sulphate.

Dextrose Liberated by Epinephrine.—Bollman and his associates maintained depancreatized animals in good condition by large doses of insulin and appropriate feeding. Four days after the withdrawal of insulin, epinephrine increased the glycosuria beyond that which could be accounted for by the conversion of protein dextrose. At the end of a twelve hour period of administration of epinephrine there was little change in the glycogen or dextrose content of the liver. The dextrose content of the blood and muscles was not materially altered. There was a marked decrease in the glycogen content of the muscles, which in these experiments was reduced to very low values (from 20 to 30 mg. for each 100 Gm. of muscle). The dextrose found in excess of the ratio between the dextrose and the nitrogen of 2.8 was almost identical in amount with the loss of glycogen from the muscle. Evidence of formation of dextrose from other substances (fat) was not obtained.

Water Storage in Liver.—Bridge and Bridges made the glycogen content of the liver of rabbits vary by modifications of the diet. Alterations in the percentage of glycogen in the liver were found to be offset by changes in one or more of the other components, especially proteins. Per unit of animal weight the total glycogen and water of the liver bore no relationship to each other. The observations do not substantiate the frequently quoted statement that, with every gram of glycogen, 3 Gm. of water is also stored in the body. In explanation of the shifts in body water which result from changes in the proportion of fat and carbohydrate in the diet, it is suggested that the mechanism is more likely to be found in the metabolism of fats than of carbohydrates.

Journal of Infectious Diseases, Chicago

49: 183-269 (Sept.) 1931

*Certain Monilias Parasitic on Man: Their Identification by Morphology and by Agglutination. Rhoda W. Benham, New York.—p. 183.
*Specificity of Avian Tuberculin Reactions. Vera B. Dolgopol, New York.—p. 216.
*Influence of Pus and Blood on Action of Bacteriophage. Martha Applebaum and W. J. MacNeal, New York.—p. 225.
Infection of Accessory Sinuses and Upper Respiratory Tract in Avitaminosis of Rats. R. G. Turner and E. R. Loew, Detroit.—p. 244.
Effect of Bacteriophage on Experimental Anthrax in White Mice. P. B. Cowles and W. M. Hale, New Haven, Conn.—p. 264.

Monilias Parasitic on Man.—According to Benham, the parasite found in thrush (Monilia albicans) is a well defined species which can be recognized and differentiated from related forms by its morphologic and cultural characteristics. M. psilosis of Ashford is aparently identical with M. albicans isolated from thrush. Many of the yeastlike organisms found in erosio interdigitalis, in chronic paronychias, in perlèche, in other dermatoses and in certain types of superficial glossitis should for the present be placed in this species. Other species showing slight, but definite, morphologic differences are found on the skin and in the sputum and feces. The author tested thirty strains of monilias for virulence. Nineteen, identified as M. albicans, from various sources, were pathogenic for rabbits. Eleven strains of other types did not produce any lesions. Seven strains of M. albicans proved similar in antigenic content as determined by reciprocal absorption of agglutinins. The slight differences detected could not be correlated with the sources from which these strains were obtained. Agglutinative reactions, when used in conjunction with other methods, were found the most satisfactory means for the identification of these rudimentary forms.

Avian Tuberculin Reactions.—Dolgopol states that a positive reaction to avian tuberculin, observed in many cases of pulmonary tuberculosis, does not indicate an active mixed infection with human and avian tubercle bacilli. (This conclusion is based on the result of inoculation of chickens with the sputum of ten patients who showed positive reactions with avian tuberculin.) A positive reaction to avian tuberculin in pulmonary tuberculosis does not indicate latent infection with the avian tubercle bacillus. (This conclusion is based on the result of inoculation of chickens with necropsy material, including peribronchial lymph nodes, from three patients who had shown positive reactions with avian tuberculin.) The large percentage of positive reactions with avian tuberculin in tuberculous patients, observed by Maggiore, by Stewart and Collins, by L'Esperance, and by the author, must be considered only as a large percentage of group reactions in patients suffering from tuberculosis caused by the mammalian types of tubercle bacilli. In the presence of positive cutaneous reactions with mammalian tuberculins a positive reaction with avian tuberculin cannot be taken as indicating an infection with the avian tubercle bacillus; but such infection may be assumed to exist when the reaction with avian tuberculin is positive while the reaction with other tuberculins is negative or considerably weaker.

Bacteriophage.—Applebaum and MacNeal present observations concerning the influence of pus, blood, blood corpuscles and blood serum on the activity of bacteriophage in vitro, and discuss briefly the possible relationship of such observations to an understanding of the behavior of bacteriophage in the body. They found that purulent exudate exerts a marked inhibitory influence on the lytic action of the antistaphylococcus bacteriophage, sufficient to explain the persistent survival of the bacteria in purulent collections within the body of a patient receiving treatment with potent bacteriophage. Even when diluted 1:1,000, a purulent exudate sometimes exerts a relative inhibitory effect in vitro. Heating the pus at 60 C. for thirty minutes diminishes this inhibitory effect only slightly. Similar dilutions of purulent exudate failed to show an analogous inhibitory influence on the lytic action of anti-colon bacillus bacteriophage. Undiluted citrated blood, undiluted defibrinated blood and diluted blood serum exercise an inhibitory influence on the antistaphylococcus bacteriophage, but there is considerable variation in behavior of different bacterial strains and apparently in behavior of different races of bacteriophage. Undiluted blood did not permit the multiplication of the colon bacillus under the experimental conditions employed, and the experiments with diluted serum failed to reveal a clearly evident inhibition of the anti-colon bacillus bacteriophage.

Kansas Medical Society Journal, Topeka

32: 325-360 (Oct.) 1931

The Physician and the Community. F. H. Slayton, Wichita.—p. 325.
The Present Medical Situation. C. D. McKeown, Wichita.—p. 329.
Modern Functions of the County Medical Society. W. J. Burns, Detroit.—p. 332.
Mastoiditis of Streptococcus Mucosus-Capsulatus: Case. La Verne B. Spake, Kansas City, Kan., and N. E. Lacy, Kansas City, Mo.—p. 339.
Letter from a Kansas Doctor to His Son. J. A. Dillon, Larned.—p. 341.

Maine Medical Journal, Portland

22: 173-190 (Sept.) 1931

General Clinical and Surgical Aspects of Disease of Biliary Tract. E. S. Judd, Rochester, Minn.—p. 174.
Heart in Thyroid Disease. E. H. Drake, Portland.—p. 178.
*Treatment of Congestive Heart Failure. P. D. White, Boston.—p. 182.
Untoward Effects in Spinal Anesthesia. I. M. Webber, Portland.—p. 186.

Treatment of Congestive Heart Failure.—According to White, congestive heart failure of more than slight degree, whether involving primarily the left ventricle or the right, must be treated as a serious condition. One should not temporize, for it is but a short step further to extreme heart failure of uncontrollable degree. The treatment of congestive heart failure of moderate degree consists in the first place of absolute rest in bed. This rest must be mental as well as physical, and it is often essential to have expert nursing care. A few days of help by day and night nurses may save the patient's life and shorten convalescence by weeks. Visitors and noise should be excluded. The rest in bed, helped by other measures, should be continued until the greatest possible gain neoplasms, and in menstrual irregularity of various types. Early pregnancy can be ruled out in cases in which some form of instrumentation of the uterus is to be undertaken. Death of the ovum may be diagnosed, and, as its action is similar to that of the established Aschheim-Zondek test, the modified test can be used to determine the presence of active placental tissue in incomplete abortions, hydatidiform mole, and chorio-epithelioma.

Sulphocyanates.—Healy presents a brief review of the literature on the therapeutics and toxicology of potassium sodium sulphocyanate, three cases illustrating a form of intoxication hitherto unreported, and experimental evidence on the toxicology of the drug. The clinical and experimental data suggest that the drug is cumulative when the avenues of its normal excretion are obstructed, even though by the best laboratory methods one cannot demonstrate such obstruction, and that the site of action is in the suprarenals. It appears that hypertension as a disease is a generalized condition of the organism which requires increased arterial tonus to maintain function and that any drug which has the power to reduce this tension to the average normal leads to disaster. On the basis of his observations the author concludes that the sulphocyanates in doses large enough to reduce blood pressure appreciably are toxic and may destroy life. The syndrome of hyposuprarenia has been produced clinically and experimentally with what have been described as therapeutic doses of sulphocyanate. The drug is cumulative under certain conditions. Other symptoms of intoxication, such as gastro-intestinal weakness, rash, dermatitis and psychosis, may in fact be manifestations of hyposuprarenia of greater or less degree. The incidence of intoxication increases with the age of the patient.

New York State Journal of Medicine, New York

31: 1189-1246 (Oct. 1) 1931

*Maternal Mortality Rate Computed and Standardized by New Method. R. J. Lowrie, New York.—p. 1189.

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Veterinary Aspects of Undulant Fever. J. F. de Vine, Goshen.—p. 1255.

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Routine Procedure for Studying Allergic Patients. Katharine Baylis MacInnis, Binghamton.—p. 1277.

Maternal Mortality Rate Computed by a New Method.—In computing the maternal mortality rate, Lowrie utilizes the proportional algebraic equation in conjunction with the principle of sampling to ascertain from a given number of live births the corresponding number of women with viable pregnancy. This, divided into the number of deaths in women with viable pregnancy, gives the death rate in the child-bearing group of women. If from this rate the rate in the non-child-bearing group is deducted, the difference is the true mortality due to pregnancy and childbirth per se. The method, depending mainly on fixed quantities, population figures, births, deaths and time, can be used for standardization of the rate so that for all countries there is a common yardstick. The method may also be used to test the accuracy of the present method of calculating the rate (maternal deaths per thousand live births) so far as this rate depends on the estimate of maternal deaths.

Northwest Medicine, Seattle

30: 389-436 (Sept.) 1931

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Sympathetic Alcoholic Injection for Relief of Arteriosclerotic Pain and Gangrene. P. G. Flothow, Seattle.—p. 408.

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Zoster Infection: Recent Investigations of Its Nature, with Histories of Two Unusual Cases. S. E. C. Turvey, Everett.—p. 417.

An Acute Exacerbation of Morbus Menieri Accompanying Herpes Zoster of Thoracic Region. A. B. Murphy, Everett.—p. 419.

Pennsylvania Medical Journal, Harrisburg

35: 1-56 (Oct.) 1931

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Philippine Journal of Science, Manila

46: 159-304 (Oct.) 1931

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Interpretation of Laws of Brown and Pearce That Govern Course of Treponematoses. O. Schobl, Manila.—p. 169.

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Prospects of Vaccination and Vaccine Therapy in Treponematoses. O. Schöbl, Manila.—p. 183.

Decay of Wood in Automobiles in Tropics. C. J. Humphrey, Manila. —p. 189.

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New or Interesting Oriental Ferns. E. B. Copeland, Berkeley, Calif. —p. 209.

Efforts Toward Biologic Control of Common Pink Mealybug Trionymus Sacchari (Cockerell) of Sugar Cane on Negroes. F. C. Hadden and A. W. Lopez.—p. 221.

Kahn Test in Clinical Syphilis. C. Monserrat, Manila.—p. 225.

Comparative Serologic Study of Vernes, Wassermann and Kahn Reactions in Experimental Treponematoses. C. Monserrat, Manila.—p. 241.

Malaria Transmission in Philippines: IV. Meteorological Factors. C. Manalang, Manila.—p. 247.

Leaf and Seed Structure of a Philippine Coriaria. J. K. Santos, Manila. —p. 257.

New or Little-Known Tipulidae from the Philippines (Diptera). XI. C. P. Alexander, Amherst, Mass.—p. 269.

Public Health Reports, Washington, D. C.

46: 2041-2091 (Aug. 28) 1931

*Medical Profession and Health Department. A. J. McLaughlin.—p. 2041.

Report on Some Tests of the Use of a New Cyanogen Product in Ship Fumigation. C. L. Williams.—p. 2048.

The Medical Profession and the Health Department.—To McLaughlin, state medicine appears as a miserable makeshift. It is un-American, ultrapaternalistic, and destructive of self-respect in both physician and patient. It is a failure in Germany, in England, and in other European countries. It is, from an American point of view, a pauperizing influence, wrong in principle and doomed to failure in practice if Americans should ever be foolish enough to try it.

Southwestern Medicine, Phoenix, Ariz.

15: 397-448 (Sept.) 1931

Relations Between Public Health Administration and Private Practice. J. R. Earp, Santa Fe, N. M.—p. 397.

Chronic Frontal Sinusitis. R. A. Duncan, Amarillo, Texas.—p. 399.

Serum Treatment of Lobar Pneumonia. R. E. McBride, Las Cruces, N. M.—p. 403.

Tribromethylalcohol Anesthesia. P. L. Travers, Gallup, N. M.—p. 405.

Résumé of Diet Therapy. C. H. Gellenthien, Valmora, N. M.—p. 409.

Injection Treatment of Varicose Veins. J. L. Murphy, El Paso, Texas. —p. 415.

Review of Literature and Some Suggestions on Septic Sore Throat. M. B. Culpepper, Carlsbad, N. M.—p. 419.

Malunion and Nonunion of Fractures. J. E. Shearer, Whipple, Ariz. —p. 421.

Minimum Equipment of General Hospitals for the Transportation and Emergency Treatment of Fractures. H. T. Southworth, Prescott, Ariz. —p. 425.

Case of Streptococcic Pneumonia: Discussion and Autopsy Report. H. Randolph, Phoenix.—p. 426.

Deaths in Good Samaritan Hospital (Phoenix). J. D. Hamer, Phoenix. —p. 428.

Presse Médicale, Paris

39: 1325-1340 (Sept. 9) 1931

*Throat Streptococci in Epidemic of Puerperal Fever. P. Courmont and P. Sédallian.—p. 1325.
*Modification in Supravital Staining of Blood. J. Bauer.—p. 1326.

Midwife a Carrier of Streptococci in Epidemic of Puerperal Fever.—Courmont and Sédallian discuss an instance in which a midwife, a passive carrier of a hemolytic streptococcus, caused puerperal infection in six with a resultant death in one of eleven deliveries within a period of eighteen days. The midwife developed a hemolytic streptococcic angina about the ninth day. Studies of the organisms isolated from the carrier and the infected patients proved that the organisms were culturally identical. The authors stress the recognition of the importance of droplet infection as a source of epidemic infection and advise a stringent and careful aseptic technic during all deliveries.

Modification in Supravital Staining of Blood.—In his studies of reticulocytes, Bauer finds the following method of blood staining highly satisfactory. He uses a 2 per cent solution of brilliant cresyl blue (1 Gm. of stain dissolved in 50 cc. of warm distilled water). The solution filtered carefully keeps many weeks. The May-Grünwald stain is used for the differential white cell count. As often as possible new glass slides should be used and these should be carefully cleaned and flamed. The materials should all be ready; including a slide with polished edges, a glass rod with the bottom flattened in the form of a spatula, a lancet, some ether, and wads of cotton. The digital finger is cleaned with ether and punctured with the lancet; the large drop of blood that appears is placed on the slide; with the glass rod a little of the cresyl blue solution is added to the blood (one part of stain to four or five parts of blood) and is mixed with the bottom of the glass rod until a brownish blue homogeneous emulsion is formed; this is allowed to stand from a minute and a half to two minutes, during which time two or three more slides are prepared. The edge of the polished slide is applied to the emulsion which spreads along the edge; the polished slide is withdrawn from the horizontal slide and placed on a new slide in such a manner as to obtain a thin and uniform smear solely with the blood adhering to the polished slide. The smears are fixed and stained with May-Grünwald stain for two minutes, and rinsed carefully with distilled water. They should not be dried in the flame. Even a person with little experience does not require more than seven or eight minutes to make three or four preparations. Examinations under oil immersion should include only the uniform and thin parts of the smear, where the cells are intact and separated one from the other, and where the nuclei of the leukocytes are stained deep blue. More than one preparation should be examined. Under the microscope the red cells are uniform red disks and the granuloreticulofilamentous substance is stained a deep blue and takes the form of rods, filaments and plexuses; often the reticular substance is sufficiently dense to fill the entire cell and sometimes so fine as to escape any but close scrutiny. This contrast stain makes the differential counting of reticulocytes simple. To get absolute results, care must be taken in following directions: having clean slides, mixing the blood in exact proportions, having a drop large enough to prevent drying, yet small enough to make a thin film. The author stresses the advantages of this modification, the simplicity and rapidity of execution and the beautiful picture that is obtained.

39: 1357-1372 (Sept. 16) 1931

Hyperacute Bilateralization in Tuberculous Patients with Artificial or Spontaneous Pneumothorax. A. Ravina, J. Delarue and D. Douady.—p. 1357.
*Hirudin in Treatment of Phlebitis, Septicemia and Various Diseases of Bacterial Nature. V. Dimitriu and G. O. Somnea.—p. 1359.

Hirudin in Treatment of Phlebitis, Septicemia and Various Diseases of Bacterial Nature.—Dimitriu and Somnea discuss the various theories regarding hirudin in the treatment of phlebitis. They state that their experiments do not prove that hirudin should be used in the treatment of phlebitis but rather that it should be used as a preventive measure. Studies of statistics prove that postoperative phlebitis occurs most frequently following operations on the rectum, stomach, appendix and other organs that contain a greater number of septic products. The authors believe that phlebitis is an infectious process. After operation the various bacteria penetrate into the blood; these bacteria are attenuated and cannot set up true septicemia and circulate for a time in the blood; and since circulation of the blood after operation is slow, and the reticulo-endothelial system more or less blocked, the bacteria are able to collect and assure the formation of the phlebitis clots. In their experiments the effect on the blood was studied by application of leeches directly as well as by subcutaneous injection of carefully sterilized hirudin-containing plasma. India ink injected into guinea-pigs did not counteract the action of the hirudin-containing plasma injected twenty-four hours previously. Two hundred patients with gynecologic disorders and with diseases of the rectum and alimentary canal did not feel any inconvenience in consequence of the hirudin treatment from twenty-four to forty-eight hours after operation. Not one postoperative pulmonary congestion was noted, whereas previously the incidence of congestion was 12 per cent. The authors conclude as follows: Hirudin hastens the exchange of leukocytes between the reticulo-endothelial system and the blood; the leukocytes, by their displacements, remove the bacteria from the blood, thus suppressing the cause of phlebitis. Hirudin associated with fixation abscess was used in the treatment of septicemias; and when fixation abscess was not effective (the authors believe this was due to a blockade of leukocytes in the reticulo-endothelial system), injections of epinephrine followed by injection of hirudin-containing plasma facilitated the displacement of the leukocytes and the removal of the reticulo-endothelial blockade.

Revista Sud. Am. de Endocrinol., etc., Buenos Aires

14: 499-568 (Aug. 15) 1931

*New Form of Hodgkin-Paltauf-Sternberg's Disease: Addison's Syndrome and Granulomatosis. R. Ruiz.—p. 499.

Addison's Syndrome and Granulomatosis.—Ruiz reports the clinical history of a tuberculous and syphilitic man aged 47 in whom nearly all the manifest disorders, such as pigmentation of the skin with hyperpigmentation of the mucous membranes, asthenia and low blood pressure, indicated Addison's syndrome. The patient had also fever, convulsions of an ischemic origin and adenopathy. He died and the necropsy revealed that all these changes had been caused by a splenolumbo-aortic granulomatosis. The author supports Spangenberg's opinion on the advisability of regarding certain forms of granulomatosis simulating Addison's disease as a new clinical type of tuberculosis. The clinical picture of the type coincides with the symptomatology given by the author's patient. Sympathetic and endocrine factors play a part in the pathogenesis of the disease (in the author's case lesions of the solar plexus complicating a dysfunctioning of the cortex of the suprarenals were found). In order to reach a clear diagnosis it is necessary first to make a differential diagnosis between Addison's syndrome and a pseudosyndrome resembling Addison's disease. Since the two principal symptoms of Addison's syndrome are typical asthenia and skin pigmentation, the fact that one of the symptoms is nontypical indicates the presence of a pseudosyndrome, which, if complemented by the positive diagnosis for granulomatosis, gives the clear diagnosis of the new type of granulomatosis. The determination of the blood formula and the biopsy of a lymph node (repeated if necessary) will help to make the precise diagnosis of granulomatosis. The treatment of this clinical type should be the same as that for general granulomatosis. Medical and surgical treatments have been resorted to in granulomatosis without success, though the evolution of the disease is not rapid. Roentgen treatment has given the best results.

Beiträge zur Klinischen Chirurgie, Berlin

153: 161-320 (Aug. 22) 1931

*Surgery with High Frequency Current. E. Heymann.—p. 161.
Clinical Aspects of Calcaneodynia. W. Jaroschy.—p. 192.
Fate of Patients Who Underwent Surgical Treatment on Account of Pulmonary Echinococcus. M. Makkas and B. Kurias.—p. 201.
Secondary Fractures of Patella. C. Barthels.—p. 233.
Fracture of Spinal Column and Its Relation to Syphilis and Pernicious Anemia. L. Strauss.—p. 238.
*Healing of Wounds Following Operation by Means of High Frequency Current, with Especial Consideration of Surgery of Mouth, Jaw and Face. E. Hauberrisser.—p. 257.

microscopic investigations on the development of cancer in the lymph nodes he concludes that cancer cells do not originate from the reticulo-endothelium within the lymph nodes but are brought from the primary tumor by way of the lymph channels and then multiply and spread within the lymph nodes. The author further discusses the predisposing factors and the mechanism of the spreading of cancer cells within the lymph nodes. Observations on his material showed that the same mechanism of dissemination that is found in one lymph node will be found in all the carcinomatous axillary lymph nodes of the same patient. The same conformity applies to the changes that are present in those lymph nodes that as yet do not contain cancer cells, and also to the regressive changes. The material further shows that if the same mechanism of dissemination is found in different patients there is also conformity in the character of the carcinoma.

Giant Growth of Toes and of Colon.—In the case of partial giant growth reported by Windholz the size of the toes was enormously increased as a result of proliferation of the fat tissues. Roentgenoscopy revealed dystrophic degenerative changes of the phalanges. The latter were enlarged and in several places were fused with one another. The bone structure was irregular. The roentgenogram showed larger and smaller roundish areas that appeared lighter, and there also were irregular areas of spongiosa. At the sites of the attachments of the muscles were cartilaginous exostoses of various sizes; the largest was on the posterior surface of the calcaneus. There were certain indications that the development of these exostoses was due not only to an anomaly of the periosteum but also to static factors. The partial giant growth was also noticeable on the colon. It was of normal length and width, but there was a marked proliferation of the fatty tissues in the region of the submucosa and of the subserosa, and it weighed seventeen times as much as a normal colon. The mucous membrane was thickened because of numerous submucous lipomas. The epiploic appendixes were likewise greatly enlarged. All other internal organs and the endocrine glands were normal and the nerves were likewise free from proliferations. The author states that in the literature there is not a record of another case of lipomatous giant growth of the colon. He thinks that the gigantism of the toes and of the colon are coordinated products of the same disturbance; namely, of the pathologic persistence of the proliferative potency of the mesenchymal tissues.

Substitute for Ligament of Patella.—For late cases of tearing of the ligament of the patella, in which direct suture is impossible, König advises a free transplantation of a portion of the fascia lata. He describes a case in which this procedure proved successful.

Zeitschrift für Klinische Medizin, Berlin

117: 443-666 (Aug. 22) 1931

*Clinical Aspects of "Rheumatic" Diseases. A. Fischer.—p. 443.
Influence of Ergotamine and Atropine on Galactose Assimilation in Patients With and Without Liver Disease. L. Pollak and A. Selinger.—p. 476.
Rôle of Fats in Treatment of Hyperacidity and of Gastric Ulcer. E. Haintz and L. Pauliczky.—p. 500.
Guttadiaphot VIII: Physicochemical Investigations on the Guttadiaphot Problem. H. A. Oelkers and R. Ammon.—p. 505.
Quantity of Circulating Blood in Course of Circulatory Diseases. P. C. Martinez.—p. 540.
Respiratory Reflex in Patients with Heart Disease: Functional Test in Cardiac Insufficiency. F. Bilski.—p. 553.
Epidemic Resembling Psittacosis in Animal Hospital. H. J. Schmid.—p. 563.
Epidemiology of Psittacosis-Like Disease. W. Frei.—p. 594.
Chlorides in Pure Gastric Juice. C. Dienst.—p. 602.
Blood Reaction in Pernicious Anemia During Anemic Stage and During Remission. K. Hitzenberger and F. Tuchfeld.—p. 607.
*New Differential Diagnostic Blood Serum Reaction. B. Purjesz and L. Dávid.—p. 627.
Cyanide Metabolism: Rôle of Liver in Intermediate Cyanide Metabolism. M. Schecter.—p. 637.
Id.: Combining Power of Animal Organs in Vitro for Hydrocyanic Acid and Its Modification by Thyroid Preparations or Thyroxine. M. Schechter.—p. 652.
Id.: Combining Capacity of Liver in Vitro for Hydrocyanic Acid. M. Schechter.—p. 657.
Id.: Splitting of Nitrile in Animal Organism and Its Modification by Thyroid Preparations or Thyroxine. M. Schechter.—p. 660.
Myeloma and Amyloid. Magnus-Levy.—p. 664.

Clinical Aspects of "Rheumatic" Diseases.—Fischer states that the term "rheumatism" is used for all disorders of the motor apparatus that belong in the therapeutic sphere of internal medicine and that are not recognized as partial manifestations of specific systemic diseases such as syphilis, tuberculosis or neoplasms. Thus the etiology of rheumatism is not strictly defined; and since acute as well as chronic processes, and articular as well as nervous disorders, are included in the term, it is too indefinite and not conducive to exact clinical diagnosis. The only positive factor of the disorders that are combined under the term rheumatism is the fact that they react favorably to physical therapy. Although the classification of articular disorders has made considerable progress for several decades, and many painful conditions that were formerly considered as of neuralgic character have been traced to pathologic changes in the vertebral column, it is only in the last few years that the term rheumatism has been more strictly defined. Investigations have revealed that in acute articular rheumatism there exist characteristic tissue changes, and for this condition the term infectious rheumatism has been recommended. In classifying the disorders of the motor apparatus belonging to the sphere of internal medicine the author mentions three main groups: (1) the various forms of polyarthritis of the general inflammatory type, to which belong acute articular rheumatism and chronic infectious arthritis (primary and secondary chronic polyarthritis); (2) the deforming arthropathies; (3) the myalgias and neuralgias, the latter being only rarely disease entities but usually caused by organic changes, especially of the vertebral column. The author discusses the clinical aspects, particularly the pathogenesis and diagnosis, of these various forms on the basis of a statistical report of 1,400 cases. With regard to therapy he emphasizes that for nearly all these conditions internal treatment is required and surgical and orthopedic measures are only rarely necessary. The prognosis he considers as comparatively favorable, provided the treatment is rational; that is, that it is based on a clear understanding of the pathogenesis. Infectious polyarthritis must be treated differently from static arthropathy, and active inflammatory processes differently from chronic degenerative processes. Liniments producing hyperemia may be helpful in acute myalgia; however, in chronic spondylosis such a treatment would be of little avail.

New Differential Diagnostic Blood Serum Reaction.—In the introduction to their paper, Purjesz and Dávid point out that the majority of tests that are employed for diagnostic purposes involve technical difficulties that make their use by the general practitioner almost impossible. For this reason they attempted to devise a method that not only would have a simple technic but also could be used for the diagnosis of various diseases. They aimed to accomplish this by a color reaction; that is, a reaction in which the appearance of readily differentiable color rings would indicate the presence of certain diseases. In order to be able to demonstrate the presence of substances characteristic for certain diseases, the authors' first aim was to find a suitable reagent. They name more than fifty substances which they studied. They further describe the technic of the method and state that they performed the test on more than 300 persons, some of whom were healthy and some of whom had syphilis, tuberculosis, cancer, icterus or pernicious anemia. It was found that the serums of healthy persons always gave the same color reaction, whereas the serum of patients showed discolorations and color rings typical for their ailment. In several apparently healthy persons, pathologic color reactions were noted and later the actual presence of the disease could be corroborated with the aid of other clinical methods. On a colored table the authors show the color reactions which they observed in tuberculosis, icterus catarrhalis, gallstone icterus, and pernicious anemia, and for comparison they show reactions in healthy persons. The mechanism of the reactions, that is, whether amino-acids or crystalloid substances play the important part, or whether the changes in the colors are due to the colloid lability of the plasma, is as yet not understood, but the authors intend to continue their studies on this problem, as well as on the practical uses of the test. Their object in making this report was to direct attention to their studies and to interest other workers to test and evaluate the method.

9: 473-544 (July) 1931

Nature of Compensation. N. A. Kabanov.—p. 473.
Id.: E. I. Tsukershtein.—p. 483.
Clinical Significance of Babinski Reflex. F. N. Dosujkov.—p. 490.
*Cardiovascular System in Acute and Chronic Articular Rheumatism. D. M. Korobov and M. I. Mekler.—p. 497.
*Cyanosis in Stagnation of Pulmonary Circulation. M. M. Pismarev.—p. 505.
Musical Heart Sounds. R. L. Manvelyan.—p. 510.
*Colloid Chemistry of Blood in Nephritic Arteriosclerotic Hypertonia. F. F. Borisenko.—p. 512.
*Combined Influence of Adonidin and Convallarin. Ya. Kh. Nolle.—p. 517.
Dicrotic Pulse on Sphygmogram. A. P. Pressman.—p. 523.
Nonsyphilitic Infections of Aorta Among Students. N. P. Likhacheva and E. Ya. Barvish.—p. 526.
Muscle Extract in Angina Pectoris and Other Diseases. Ya. C. Shvartsman.—p. 531.

Cardiovascular System in Acute and Chronic Articular Rheumatism.—Korobov and Mekler made the following observations after a study of 663 cases of various arthritic infections: Many polyarthritic forms of acute rheumatism do not leave any functional or physical changes in the condition of the heart. The heart is normal in from 5 to 9 per cent of the acute and in 33⅓ per cent of the subacute articular rheumatic conditions. In the development of the clinical picture of rheumatic endomyopericarditis, the course is that of polyarthritis and the involvements are articular, cardiovascular and pericardiac. Abatement of the cardiac condition leads to a decrease in auscultatory symptoms (the disappearance of muffled sounds and appearance of the clear heart tone); the limits of cardiac dulness decrease; and the temperature returns slowly to normal. This all takes place within a period of one, two or three months, corresponding to the development of mitral stenosis. In 86.6 per cent of the cases the beginning of the development of endomyocarditis takes place during the first days of the development of the articular infection; there is increased temperature at first and later normal and even subfebrile (37.1 to 37.4 C.) temperature. Their study showed the greatest proportion to consist of both endocarditis and myocarditis and less often just partial or complete myocarditis. Advanced rheumatic myocarditis was characterized by bloatedness of the face, dilatation of the heart toward the right, absence of the first heart tone, increase in size of the lungs, a slight tachycardia or even bradycardia at rest, tachycardia at times with small physical reinforcements, low blood pressure, maximal and minimal monothermia, albuminuria, cylindruria, difficulties in respiration, constriction of the chest and pains in the region of the heart. Valvular endocarditis was characterized by the early appearance of systolic murmurs which changed in location, beginning in the region of the chest, third rib to the left, and deviating the second heart sound toward the pulmonary artery; there was an increase in the size of the spleen, often the presence of bloody urine, and a subfebrile temperature. Systolic murmurs were present not only in marked endocarditis but also in endocarditis of the chordae tendineae, myocarditis in the nipple region and dystrophies of the bicuspid valve. Specific localization could be determined only by follow-up study from the beginning. Disappearance of systolic murmurs did not serve as proof that there had been a valvular endocarditis involvement and that the condition had improved; such deductions can come only from observation during the period of the development of mitral stenosis (from eight to twelve months). In their experience true endocarditis never improved without leaving some marks. Their study of the length of the period in the growth of mitral stenosis proved that termination of the process was never before the sixth month and the diagnosis of the heart condition was never possible till that time.

Cyanosis in Stagnation of Pulmonary Circulation.—Pismarev's studies lead to the following conclusions: Cyanosis as a sign of difficulty in the lesser circulation in consequence of mitral stenosis and decompensation is caused by anatomic changes in the capillaries of the pulmonary artery and a disturbance in the peripheral blood circulation. The pathologic changes in the lungs together with changes in the pulmonary arterial system during mitral stenosis, and the changes in the alveoli themselves during emphysema in combination with sclerosis of the pulmonary artery, lead to a disturbance in the gaseous exchange. Single or multiple causes of stenosis in view of various kinds of stagnation in the lesser circulation are present not only in sclerosis of the pulmonary artery and emphysema but also in the disturbance of the peripheral blood system.

Colloid Chemistry of Blood in Nephritic Arteriosclerotic Hypertonia.—Borisenko makes the following observations as a result of his studies, which included sixteen cases of chronic nephritis, twelve cases of arteriosclerosis and six miscellaneous cases. He concluded that there was no relation between high blood pressure, on the one hand, and surface tension of the blood serum and osmotic resistance of the erythrocytes, on the other. Low surface tension is explained by the colloid composition of the serum—low protein (globulin and fibrinogen) dispersion. His studies of chronic nephritic and arteriosclerotic conditions revealed the presence of a low surface tension, a disturbance of lipoid metabolism toward an increase in serum lipoids, and an increase in hydrogen ion concentration; the maximal osmotic resistance of the erythrocytes was increased, while the minimal value was decreased.

Combined Influence of Adonidin and Convallarin in Cardiac Conditions.—Nolle began his study believing that the combined effect of some therapeutic agents may be far superior to the use of each separately. The doses of adonidin and convallarin in his experiment ranged from 1:1,000 to 1:40,000. His conclusions were as follows: Adonidin in large doses caused an increase in rhythm and a decrease in amplitude. There was no cumulative action and the substance diffused easily. Convallarin in large doses caused a slowness in rhythm and a decrease in amplitude ending at times in stasis of the heart. Convallarin had a cumulative effect and diffused with difficulty. Convallarin was more toxic than adonidin. Combination of the two in small doses (1:40,000 plus 1:40,000) caused a marked retardation of rhythm and a marked increase in amplitude. The effects of the combination were markedly greater than the sum of the effects of each in similar small doses (1:40,000) administered separately. It was found that administration of adonidin (1:2,000) counteracted the drastic effect produced by a previous administration of convallarin (1:4,000). The combination of medium doses of adonidin with small doses of convallarin was more favorable than the combination of small doses of adonidin with medium doses of convallarin. The author cautions against the cumulative action of convallarin.

Ugeskrift for Læger, Copenhagen

93: 787-808 (July 30) 1931

*Sudden Death from Heart Failure in Adults. W. Munck.—p. 787.
Hospital Epidemic of Paradysentery. H. Munck.—p. 794.
Three Cases of Undulant Fever. S. Hoffmeyer.—p. 795.

Sudden Death from Heart Failure in Adults.—Munck's material comprises 130 cases in which necropsy was done. In 74 cases, in persons mainly between the ages of 50 and 70, death was due to disease of the coronary arteries, from simple sclerosis to all its resulting conditions, in 23 cases to pure disorders of the myocardium or of the heart valves, while syphilitic aortitis with its special localization in the ascending aorta caused sudden death in 33 cases, or 26 per cent of all the cases, at an average age of 45. There was a marked preponderance of men over women. In many cases there was not any information concerning an immediate cause of the sudden death.

93: 809-828 (Aug. 6) 1931

*Continued Hematologic and Clinical Investigations in Ulcerous Anginas. A. Buch.—p. 809.

Continued Hematologic and Clinical Investigations in Ulcerous Anginas.—Buch accounts for two different clinical forms of Vincent's angina. His hematologic studies show that the membrano-ulcerous form, in four cases previously reported, is secondary to infectious mononucleosis, while the ulcerous or ulceronecrotic form, in the fourteen cases that have been reported, is accompanied by a varying blood picture. He is inclined to characterize the Vincent's angina which appears in other diseases of the blood—as in his case of agranulocytosis—as of membrano-ulcerous form. His clinical observations indicate that the ulceronecrotic form starts at the base of the crypts, and retention in the crypts is believed to play an important part in its origin.

9: 473-544 (July) 1931

Nature of Compensation. N. A. Kabanov.—p. 473.
Id.: E. I. Tsukershtein.—p. 483.
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*Cardiovascular System in Acute and Chronic Articular Rheumatism. D. M. Korobov and M. I. Mekler.—p. 497.
*Cyanosis in Stagnation of Pulmonary Circulation. M. M. Pismarev.—p. 505.
Musical Heart Sounds. R. L. Manvelyan.—p. 510.
*Colloid Chemistry of Blood in Nephritic Arteriosclerotic Hypertonia. F. F. Borisenko.—p. 512.
*Combined Influence of Adonidin and Convallarin. Ya. Kh. Nolle.—p. 517.
Dicrotic Pulse on Sphygmogram. A. P. Pressman.—p. 523.
Nonsyphilitic Infections of Aorta Among Students. N. P. Likhacheva and E. Ya. Barvish.—p. 526.
Muscle Extract in Angina Pectoris and Other Diseases. Ya. C. Shvartsman.—p. 531.

Cardiovascular System in Acute and Chronic Articular Rheumatism.—Korobov and Mekler made the following observations after a study of 663 cases of various arthritic infections: Many polyarthritic forms of acute rheumatism do not leave any functional or physical changes in the condition of the heart. The heart is normal in from 5 to 9 per cent of the acute and in 33⅓ per cent of the subacute articular rheumatic conditions. In the development of the clinical picture of rheumatic endomyopericarditis, the course is that of polyarthritis and the involvements are articular, cardiovascular and pericardiac. Abatement of the cardiac condition leads to a decrease in auscultatory symptoms (the disappearance of muffled sounds and appearance of the clear heart tone); the limits of cardiac dulness decrease; and the temperature returns slowly to normal. This all takes place within a period of one, two or three months, corresponding to the development of mitral stenosis. In 86.6 per cent of the cases the beginning of the development of endomyocarditis takes place during the first days of the development of the articular infection; there is increased temperature at first and later normal and even subfebrile (37.1 to 37.4 C.) temperature. Their study showed the greatest proportion to consist of both endocarditis and myocarditis and less often just partial or complete myocarditis. Advanced rheumatic myocarditis was characterized by bloatedness of the face, dilatation of the heart toward the right, absence of the first heart tone, increase in size of the lungs, a slight tachycardia or even bradycardia at rest, tachycardia at times with small physical reinforcements, low blood pressure, maximal and minimal monothermia, albuminuria, cylindruria, difficulties in respiration, constriction of the chest and pains in the region of the heart. Valvular endocarditis was characterized by the early appearance of systolic murmurs which changed in location, beginning in the region of the chest, third rib to the left, and deviating the second heart sound toward the pulmonary artery; there was an increase in the size of the spleen, often the presence of bloody urine, and a subfebrile temperature. Systolic murmurs were present not only in marked endocarditis but also in endocarditis of the chordae tendineae, myocarditis in the nipple region and dystrophies of the bicuspid valve. Specific localization could be determined only by follow-up study from the beginning. Disappearance of systolic murmurs did not serve as proof that there had been a valvular endocarditis involvement and that the condition had improved; such deductions can come only from observation during the period of the development of mitral stenosis (from eight to twelve months). In their experience true endocarditis never improved without leaving some marks. Their study of the length of the period in the growth of mitral stenosis proved that termination of the process was never before the sixth month and the diagnosis of the heart condition was never possible till that time.

Cyanosis in Stagnation of Pulmonary Circulation.—Pismarev's studies lead to the following conclusions: Cyanosis as a sign of difficulty in the lesser circulation in consequence of mitral stenosis and decompensation is caused by anatomic changes in the capillaries of the pulmonary artery and a disturbance in the peripheral blood circulation. The pathologic changes in the lungs together with changes in the pulmonary arterial system during mitral stenosis, and the changes in the alveoli themselves during emphysema in combination with sclerosis of the pulmonary artery, lead to a disturbance in the gaseous exchange. Single or multiple causes of stenosis in view of various kinds of stagnation in the lesser circulation are present not only in sclerosis of the pulmonary artery and emphysema but also in the disturbance of the peripheral blood system.

Colloid Chemistry of Blood in Nephritic Arteriosclerotic Hypertonia.—Borisenko makes the following observations as a result of his studies, which included sixteen cases of chronic nephritis, twelve cases of arteriosclerosis and six miscellaneous cases. He concluded that there was no relation between high blood pressure, on the one hand, and surface tension of the blood serum and osmotic resistance of the erythrocytes, on the other. Low surface tension is explained by the colloid composition of the serum—low protein (globulin and fibrinogen) dispersion. His studies of chronic nephritic and arteriosclerotic conditions revealed the presence of a low surface tension, a disturbance of lipoid metabolism toward an increase in serum lipoids, and an increase in hydrogen ion concentration; the maximal osmotic resistance of the erythrocytes was increased, while the minimal value was decreased.

Combined Influence of Adonidin and Convallarin in Cardiac Conditions.—Nolle began his study believing that the combined effect of some therapeutic agents may be far superior to the use of each separately. The doses of adonidin and convallarin in his experiment ranged from 1:1,000 to 1:40,000. His conclusions were as follows: Adonidin in large doses caused an increase in rhythm and a decrease in amplitude. There was no cumulative action and the substance diffused easily. Convallarin in large doses caused a slowness in rhythm and a decrease in amplitude ending at times in stasis of the heart. Convallarin had a cumulative effect and diffused with difficulty. Convallarin was more toxic than adonidin. Combination of the two in small doses (1:40,000 plus 1:40,000) caused a marked retardation of rhythm and a marked increase in amplitude. The effects of the combination were markedly greater than the sum of the effects of each in similar small doses (1:40,000) administered separately. It was found that administration of adonidin (1:2,000) counteracted the drastic effect produced by a previous administration of convallarin (1:4,000). The combination of medium doses of adonidin with small doses of convallarin was more favorable than the combination of small doses of adonidin with medium doses of convallarin. The author cautions against the cumulative action of convallarin.

Ugeskrift for Læger, Copenhagen

93: 787-808 (July 30) 1931

*Sudden Death from Heart Failure in Adults. W. Munck.—p. 787.
Hospital Epidemic of Paradysentery. H. Munck.—p. 794.
Three Cases of Undulant Fever. S. Hoffmeyer.—p. 795.

Sudden Death from Heart Failure in Adults.—Munck's material comprises 130 cases in which necropsy was done. In 74 cases, in persons mainly between the ages of 50 and 70, death was due to disease of the coronary arteries, from simple sclerosis to all its resulting conditions, in 23 cases to pure disorders of the myocardium or of the heart valves, while syphilitic aortitis with its special localization in the ascending aorta caused sudden death in 33 cases, or 26 per cent of all the cases, at an average age of 45. There was a marked preponderance of men over women. In many cases there was not any information concerning an immediate cause of the sudden death.

93: 809-828 (Aug. 6) 1931

*Continued Hematologic and Clinical Investigations in Ulcerous Anginas. A. Buch.—p. 809.

Continued Hematologic and Clinical Investigations in Ulcerous Anginas.—Buch accounts for two different clinical forms of Vincent's angina. His hematologic studies show that the membrano-ulcerous form, in four cases previously reported, is secondary to infectious mononucleosis, while the ulcerous or ulceronecrotic form, in the fourteen cases that have been reported, is accompanied by a varying blood picture. He is inclined to characterize the Vincent's angina which appears in other diseases of the blood—as in his case of agranulocytosis—as of membrano-ulcerous form. His clinical observations indicate that the ulceronecrotic form starts at the base of the crypts, and retention in the crypts is believed to play an important part in its origin.

PROTOCOLS

Group 1

Case 4.—S. M., a white man, aged 31. Secondary syphilid of one week's duration.

Treatment.—Twenty-eight injections over a period of nine months.

Serologic Course in Case 4

Date	Kahn Quantitative
12-20-27 (admission)	240 reacting units
1- 4-28	240 reacting units
1-12-28	200 reacting units
1-17-28	120 reacting units
1-26-28	40 reacting units
2-11-28	4 reacting units
4-16-28	4 reacting units
6-16-28	40 reacting units
8- 8-28	4 reacting units
8-22-28	4 reacting units
9-25-28	0 reacting units (three plus)
10-30-28	4 reacting units

Clinical Course.—During Treatment: The secondary eruption disappeared in three weeks after the beginning of treatment.

After treatment: The patient received a first course of routine antisyphilitic treatment, consisting of twenty intramuscular injections of 1 per cent mercuric chloride and two intravenous injections of arsphenamine (0.4 and 0.5 Gm., respectively). The qualitative Kahn reaction changed from four plus to negative. The patient then received two more courses, each consisting of twenty injections of mercury and one of arsphenamine (0.5 Gm.). The Kahn reaction remained negative for the remaining seven months of observation.

Case 7.—S. N., a white man, aged 52. Secondary syphilid of two weeks' duration.

Treatment.—Nineteen injections over a period of six months.

Serologic Course in Case 7

Date	Kahn Quantitative
3- 6-28 (admission)	240 reacting units
3-29-28	80 reacting units
4-16-28	20 reacting units
5-19-28	0 reacting units (negative)
6- 7-28	0 reacting units
Discontinued treatment for two months	
8-10-28	4 reacting units
9-26-28	0 reacting units (three plus)

Clinical Course.—During Treatment: The secondary eruption disappeared before the first injection—three weeks after its appearance. The patient improved during treatment in weight, appetite and general health.

After Treatment: Patient disappeared from observation.

Case 10.—C. S., a white man, aged 22. Secondary syphilid of one week's duration.

Treatment.—Sixteen injections over a period of four months.

Serologic Course in Case 10

Date	Kahn Quantitative
3-16-28 (admission)	240 reacting units
4- 7-28	120 reacting units
4-19-28	4 reacting units
5- 6-28	0 reacting units (negative)
6-18-28	0 reacting units (negative)
7-11-28	0 reacting units (three plus)
Period of no treatment for two months; three injections in September	
9-18-28	4 reacting units

Clinical Course.—During Treatment: The generalized macular syphilid disappeared four weeks after the treatment was started. The patient gained weight under treatment and improved generally.

After Treatment: The patient failed to report for further observation.

Group 2

Case 12.—H. R., a white woman, aged 26. Secondary syphilid of one month's duration.

Treatment.—Nineteen injections over a period of six months.

Serologic Course in Case 12

Date	Kahn Quantitative
2-27-28 (admission)	160 reacting units
3-21-28	20 reacting units
4-18-28	20 reacting units
7-16-28	20 reacting units
8- 1-28	4 reacting units
9- 7-28	4 reacting units
9-25-28	4 reacting units
No injections for five weeks	
10-31-28	4 reacting units

Clinical Course.—During Treatment: The secondary eruption disappeared in one week after the beginning of treatment. General clinical improvement was satisfactory.

After Treatment: In December, 1928, three months after the last injection, the Kahn reaction was four plus. The patient was placed on routine antisyphilitic treatment. However, she did not report to the clinic regularly. In the first five months of 1929 she received only twenty injections of 1 per cent aqueous mercuric chloride, and no arsphenamine. At that time the Kahn reaction was one plus. In the next five months she received twenty injections of mercury, one of neoarsphenamine (0.6 Gm.) and one of arsphenamine (0.4 Gm.). The Kahn reaction became negative and has remained so to date (April, 1931). During the interval, the patient has received only one injection of arsphenamine (0.6 Gm.) and three courses of mercury, twenty injections per course. The patient has been clinically well during this two year period of observation and serologically well for one and a half years.

Case 13.—G. L., a white man, aged 37. Secondary syphilid of five days' duration.

Treatment.—Nineteen injections over a period of four months.

Serologic Course in Case 13

Date	Kahn Quantitative
5-25-28 (admission)	240 reacting units
6-16-28	120 reacting units
7-11-28	80 reacting units
8-15-28	20 reacting units
9-20-28	20 reacting units
10- 9-28	4 reacting units

Clinical Course.—During Treatment: The secondary eruption disappeared three weeks after the beginning of treatment.

After Treatment: The patient received five injections of neoarsphenamine and twenty-one injections of 1 per cent aqueous mercuric chloride. The Kahn reaction became negative. From March, 1929, to March, 1931, he received practically no treatment. At the latter date the Kahn reaction was reported negative.

Case 17.—R. G., a white man, aged 26. Primary syphilid of one month's duration.

Treatment.—Ten injections over a period of forty-five days

Serologic Course in Case 17

Date	Kahn Quantitative
6-28-28 (admission)	0 reacting units (three plus)
7-18-28	240 reacting units
8- 8-28	4 reacting units

Clinical Course.—During Treatment: The chancre had involuted spontaneously previous to admission. The patient had no secondary eruption.

After Treatment: The patient was treated by private physicians. He did not report to the clinic for further observation.

it is certain that no one can interpret at the present time what it is in the fever that brings about the result, but I believe it is the fever itself that is responsible for the improvement, for any fever therapy may be used. Indeed, Neymann and Osborne of Chicago have perfected the application of endothermy in the treatment of dementia paralytica, a method of treatment, which at the present time is producing brilliant results.

Dr. Clarence A. Neymann, Chicago: I came here particularly to hear this paper, because I have been producing an elevation of temperature for several years by diathermy in the treatment of dementia paralytica. I am sorry Dr. Schamberg could not give me any hint as to why fever, or hyperpyrexia, can bring about this improvement. We have treated at the Cook County Infirmary, accidentally, two persons with primary syphilis. One went into the secondary stage and the other did not. In the production of artificial fever by diathermy we can hold the fever at 100.5 to 105 F. and we now get 66 per cent remissions in dementia paralytica, provided we give enough treatment. By that I mean from forty to fifty treatments, given biweekly. I should like to hear why the fever produces this improvement, for I came particularly for enlightenment on this point.

Dr. Louis H. Jorstad, St. Louis: To my knowledge there is no scientific evidence justifying the statement that fever is the only important element in the treatment of syphilis by means of typhoid injections, and the like. Fever is a manifestation of metabolic disturbances taking place in the body. However, this factor from the standpoint of the problem we wish to present is a minor one. The point we wish to emphasize is the nonspecificity of the various agents that we used in our treatment. Ewerhardt and Cady have been carrying on a long series of experiments with patients, raising their body temperature by means of diathermy, and have not had an appreciable amount of success in changing the reaction of the blood in a group of Wassermann-fast patients. We used a very small amount of treatment. There were only a few injections and this cannot be compared with a series of hot baths or keeping a patient in a diathermy circuit for a period of hours at frequent intervals over a period of months. In regard to Dr. Neymann's query, I might say that a considerable amount of chemical analysis of the blood has been done on patients under the influence of the continued hot baths, as well as the continued diathermy. There have been reported marked changes in the chemical composition of the blood following these therapies. The idea in our investigation was to study the serologic and clinical course in a series of early and latent cases of syphilis as affected by nonspecific foreign protein therapy. None of the agents we used were specific in character. Following this course of treatment all of the patients were referred to the outpatient department for routine antisyphilitic treatment and it was interesting to note that in the cases studied a small amount of treatment was necessary to cause further clinical and serologic improvement.

Effect of Derangement of Salt and Water Balance.—Perhaps the hottest place in England is about a mile under Salford, where the coal miners work in boots and bathing drawers, and empty the sweat from their boots at lunch or stopping time. One man sweated eighteen pounds in the course of a shift, and it is probable that even this figure has been exceeded. This sweat contained about an ounce of salt—twice what the average man consumes in all forms per day. The salt loss has been instinctively made up above ground by means of bacon, kippers, salted beer and the like. And as long as they did not drink more than a quart of water underground, no harm came to the miners. But a man who has sweated nearly two gallons is thirsty, and coal dust dries the throat, so this amount was often exceeded, and the excess occasionally led to appalling attacks of cramp, often in the stomach, but sometimes in the limb or back. The victims had taken much more water than was needed to adjust the salt concentration of their blood, and the diversion of blood from their kidneys to their muscles and skin was so great that they were unable to excrete the excess. Haldane, J. B. S.: Possible Worlds, New York, Harper & Brothers, 1928, p. 82, cited by Bodansky: Introduction to Physiological Chemistry, ed. 2, New York, John Wiley & Sons, p. 241.

TROPICAL RAT MITES, LIPONYSSUS BACOTI HIRST, VECTORS OF ENDEMIC TYPHUS *

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AND
BEDFORD SHELMIRE, M.D.
DALLAS, TEXAS

This report shows that in three instances a subclinical type of endemic typhus was transmitted from a guinea-pig to rats through bites of tropical rat mites, *Liponyssus bacoti* Hirst. It shows that in five instances the disease was transmitted from guinea-pig to guinea-pig by such mites. The evidence is based on temperatures of the animals after infected mites had fed on them and on studies of these infections in other guinea-pigs.

Studies on a human dermatitis caused by bites of tropical rat mites suggested a coincidental occurrence of cases of endemic typhus and tropical rat mites.[1] In the vicinities of Longview and Henderson, Texas, it seemed likely that these parasites were concerned in the transmission of this disease. Records were obtained of thirty-seven persons having symptoms of the disease, and in each instance their blood gave a positive Weil-Felix reaction. Twenty-three of these persons worked in establishments where foods and grains were handled. Such places were favorable for rats and tropical rat mites. At four of these locations, mites were collected and identified as *Liponyssus bacoti*. At Fort Worth and Dallas, Texas, also tropical rat mites were found in locations suspected as origins of three cases of endemic typhus fever.

Our strain of endemic typhus was obtained from a white man, J. H., aged 40, residing at Dallas, Texas. His past history was essentially negative. One month previous to his admittance into the hospital he took work as a waiter in a café at Henderson, Texas. During this period of service he experienced on the lower limbs bites which he attributed to chiggers or mosquitoes; he did not observe any mites. When the premises of this café were investigated by us, rats were obtained and found to be infested with tropical rat mites.

The patient was admitted to Baylor Hospital, Nov. 1, 1930. There was a typical prodromal period, fever, skin eruption, headaches, delirium, aches and pains over the body, and a Weil-Felix reaction in dilutions of 1:320. During the fourth to the eleventh day following the beginning of fever, the white blood cell count showed an increase from 6,000 to 17,300. On the twelfth day there was a white blood cell count of 14,900. On the eighth day following the beginning of fever, blood was drawn and 2.5 cc. was given intraperitoneally to each of two male guinea-pigs. After nine days, both pigs developed scrotal swellings. By the end of the thirteenth day following inoculation, the swelling subsided. At the autopsy of one of the animals, petechial hemorrhages were found on the surface of the testes. Also, adhesions of the parietal and visceral tunica were present. Whole blood of these animals was used in transferring the infection to other were collected as soon as they had taken a meal of blood. The guinea-pigs did not attempt to eat the mites. When albino rats were used in these experiments, it was necessary to fit their necks with metal collars in order to prevent them from eating the mites.

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* From the Division of Insects Affecting Man and Animals, U. S. Bureau of Entomology, and of the Department of Dermatology, Baylor University College of Medicine.

[1] Shelmire, Bedford; and Dove, W. E.: The Tropical Rat Mite, Liponyssus Bacoti Hirst, J. A. M. A. **96**: 579-584 (Feb. 21) 1931.

Bites of Tropical Rat Mites That Did Not Furnish Evidence of Transmission of the Disease.—With both guinea-pigs and rats we encountered animals that did not receive infections of endemic typhus through bites of tropical rat mites, or such infections were not recognized. Since three of ten rats employed in our early experimentation were found infested with tropical rat mites when purchased from a dealer, and since two rats from this series were found immune to infection with our stock strain of virus, it is possible that our negative results were occasioned by our working with rats immune in nature. With serums of rats later obtained from this source, positive Weil-Felix reactions were obtained. Investigation revealed that these animals were reared in a district where typhus had recently been reported.

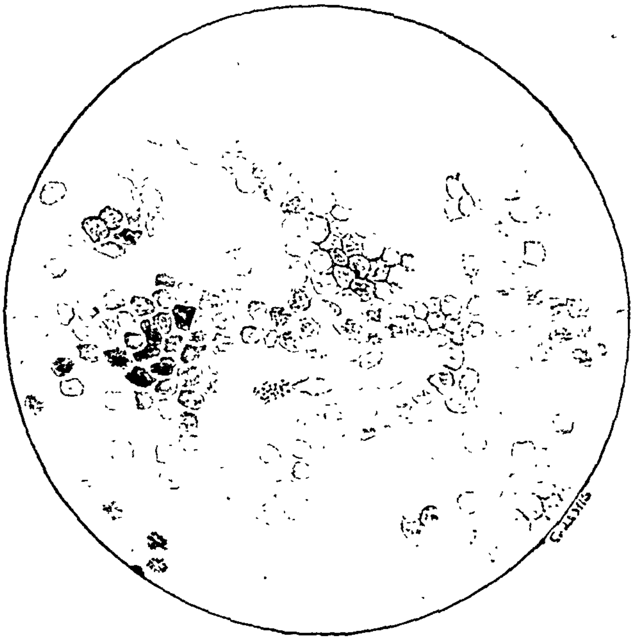

Fig. 2.—Microtome section of brain of guinea-pig. Note Rickettsia in wall of ruptured blood vessel of the parietal lobe. Fixation on the fourth day of fever, seventeen days after ten infected female tropical rat mites fed on guinea-pig. Formaldehyde and Giemsa.

Bites of Tropical Rat Mites That Transmitted a Subclinical Type of the Disease to Rats.—During other experiments we encountered three rats that gave evidence of a subclinical type of infection through bites of tropical rat mites. From these animals, tunica or spleen tissues were used in inoculating pigs. The inoculations resulted in febrile reactions and in the finding of *Rickettsia*.

After twenty infected mites took blood of a male rat, there was no abnormality in its temperature during eight days. When the rat was killed, a Weil-Felix reaction of the blood was positive in dilutions of 1:40. One twentieth of a tunica of this rat was crushed in saline solution and given intraperitoneally to a guinea-pig. Six days after the guinea-pig received this inoculation, its temperature reached 104.6 F. and there was a slight congestion of the scrotum. On the twenty-fifth day following inoculation, the pig was reinoculated with one twentieth of an infected tunica of our stock strain. This was not followed by a febrile reaction or swelling like that observed in the control pig. The guinea-pig was therefore considered an immune animal. Fourteen days after the second inoculation, this pig was again inoculated with one twentieth of an infected tunica of our stock strain. The third inoculation resulted in a febrile reaction and swelling of the left side of the scrotum. This reaction is interpreted to mean that a temporary immunity was established in the pig. The experiment is interpreted to mean, also, that infected mites transmitted a subclinical type of endemic typhus to the rat.

Infected mites were allowed to feed on a male rat for a period of twenty-four hours. The temperature of the animal did not exceed 101.4 F., and there was no evidence of scrotal swelling during the following ten days. At autopsy, a Weil-Felix test of the blood was negative in all dilutions. A tunica was crushed in physiologic solution of sodium chloride and one twentieth of it was given intraperitoneally to a male guinea-pig. On the fifth day following inoculation, the pig developed a temperature of 106.8 F. and the scrotum showed characteristic swelling. At autopsy on the eighth day following inoculation, the tunica and surface of a testicle were markedly hemorrhagic. Scrapings made for endothelial cells of the tunica vaginalis demonstrated the presence of *Rickettsia.* One twentieth of an infected tunica of this pig was crushed in physiologic solution of sodium chloride and used successfully in inoculating two other guinea-pigs. This experiment shows that a rat bitten by infected tropical rat mites may harbor the organism for at least ten days and show no symptoms of the infection.

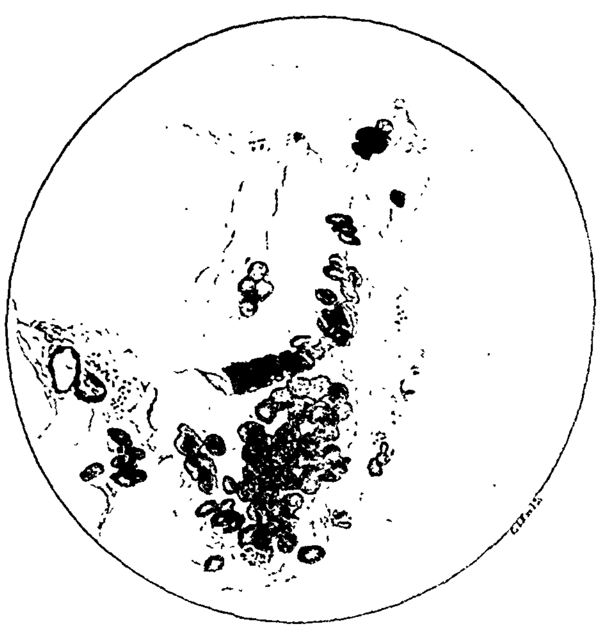

Fig. 3.—Microtome section of testicular cord of guinea-pig showing hemorrhage and an infection by Rickettsia. This is an example of hereditary transmission of endemic typhus. The infection passed from the adult mite through the egg to its offspring. It was transmitted to a guinea-pig through bites of the larval mite. Formaldehyde, iron hematoxylin and Giemsa.

Infected mites were allowed to feed on another male rat for a period of twenty-four hours. During a period of twenty-one days the rat showed no abnormalities in temperature. At autopsy, organs were used in inoculating two guinea-pigs. Five days after these injections were made, each of the two guinea-pigs had moderate carried through three inoculation generations in guinea-pigs. In four different animals examined, *Rickettsia* was found in smears or sections of the tunica. In four instances, also, in two rats and two guinea-pigs, the animals receiving inoculations of this strain demonstrated that they were immune to subsequent inoculations of our stock strain.

The test demonstrates experimental transmission of endemic typhus from guinea-pig to guinea-pig through bites of tropical rat mite larvae. It demonstrates that infections may pass from female mites through their eggs to the larvae and that such larvae are capable of infecting guinea-pigs.

SUMMARY AND CONCLUSIONS

1. During a high seasonal incidence of endemic typhus in northeastern Texas, a patient having typical symptoms of the disease and a positive Weil-Felix reaction in dilutions of 1:320 furnished blood for our experimental strain of this disease.

2. Cross inoculations with a strain of Rocky Mountain spotted fever show that these are different diseases.

3. Mites and guinea-pigs were obtained from separated localities and from premises where there were no indications of typhus infection of man. Following bites of the mites there was no evidence of fever in the guinea-pigs. These mites and guinea-pigs were considered uninfected and were subsequently used in our transmission experiments.

4. Twenty-five mites engorging on the blood of a guinea-pig infected with our strain of endemic typhus were crushed in physiologic solution of sodium chloride and given intraperitoneally to another guinea-pig. The experiment resulted in infection of the latter animal.

5. Positive subclinical evidence of transmission of the disease was obtained when three male rats receiving bites from our infected supply of mites gave no clinical evidence of infection of endemic typhus. Ten and twenty-one days after the mites had bitten the rats, tissues from the rats produced experimentally the disease in guinea-pigs.

6. Four days after "clean" mites fed on the blood of a guinea-pig infected with endemic typhus, the mites fed on another guinea-pig and produced a febrile type of the disease.

7. Ten days after "clean" mites fed on a guinea-pig infected with endemic typhus, they fed on a guinea-pig, and this did not subsequently show clinical evidence of transmission.

8. Seven days after mites fed on the blood of an infected animal, four positive transmissions of endemic typhus were obtained in five tests. The disease was transmitted experimentally from guinea-pig to guinea-pig through bites of tropical rat mites.

9. Positive evidence was obtained experimentally in hereditary transmission of endemic typhus by mite larvae. The female mites engorged with blood of an infected guinea-pig. Seven days later, when eggs of these females had hatched, the young larvae fed on a "clean" guinea-pig. The guinea-pig receiving bites of the larvae developed endemic typhus.

10. In experiments reported herein, four rats and ten guinea-pigs were used in the transmission of endemic typhus through bites of tropical rat mites. Positive evidence of transmission of the disease was obtained in eight instances.

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ABSTRACT OF DISCUSSION

Dr. Kenneth F. Maxcy, University, Va.: Epidemiologic considerations have indicated that the endemic typhus fever of the southeastern portion of the United States is conveyed to man by the bites of one of the rat parasites. Since the tropical rat mite (Liponyssus bacoti) is known to attack man and has been found present in many localities where cases of typhus fever were known to have occurred, it deserves careful consideration as a possible vector. So far as I am aware, Savannah, Ga., has the highest incidence of this disease of any city in the United States. In 1927, by direction of the Surgeon General of the United States Public Health Service, a careful survey was made of the parasites found on rats in Savannah. The rats were captured alive in cage traps, etherized, and carefully combed. During the month of October (a time of year when the incidence of typhus fever is maximal) only six specimens of Liponyssus bacoti were identified in the combings from 499 rats, although a special effort was made to find them. Another species of mite (Laelaps hawaiiensis) was much more common, 151 specimens being identified. This, and other considerations, led me to doubt the possibilities of the tropical rat mite as a vector. I was interested to learn a year ago that Drs. Shelmire and Dove had found this mite to be associated with cases of typhus fever in eastern Texas. Since that time, as was stated, they have been working on the experimental transmission of the disease in guinea-pigs by this mite. The final value of their experiments will depend on the accuracy of their interpretation of what constitutes a typhus fever reaction in guinea-pigs and rats. To be frank, I am not altogether satisfied that they have been sufficiently rigid in their criteria of successful infection.

Dr. Hans Zinsser, Boston: While I don't agree with the announcement of Drs. Shelmire and Dove that the organism demonstrated was a parasitic protozoan, Rickettsia, I feel that that is not very important because so little is known about the protozoans that it doesn't make much difference what they are called as long as their properties are studied. Not having seen the experimental animals, but seeing the illustrations, I should say that, while I think Dr. Maxcy is right in saying there are other criteria, such as cross immunity and brain lesions, which ought to be looked up, I think the chances that the guinea-pigs did not have typhus fever is extremely small. The guinea-pigs survived, and I should be willing to take a chance on that being correct. As far as transmission is concerned, I think that we are now dealing with an interesting possibility of variations and different alternatives, because, as is known, here is another insect that may possibly transmit from the rat to man. Deyer has found the virus in fleas, and Dr. Castaneda and I have been able to keep the virus alive in bedbugs and in three varieties of ticks; some of this work is about to be published and some of it has already been published. I think that we can bring complete confirmation now to the suggestion made by Maxcy in 1926. I think that typhus fever has a reservoir in rats because —and I am saying it not only for myself, but for my collaborators, Drs. Mooser and Castaneda—in Mexico City within the last six weeks we have found the virus in the brains of rats trapped in the Belen prison. We have trapped rats, pooled their brains, and injected the brains into guinea-pigs; and while Drs. Mooser and Castaneda are still there working over the insects on the wild rats, we are sure now that, if one has luck, typhus fever can be produced in this way. There were two guinea-pigs that reacted typically with all the possible controls made, with the exception that no brain lesions were found. The strains are both in the fourth and in the fifth generation, respectively, now, and are being further studied. In two instances, in each of which two brains from rats caught in the Belen prison were injected in the guinea-pigs, typhus fever developed on the tenth and the twelfth day, respectively. The next step is to find the insect infector.

Dr. Albert E. Roussel, Philadelphia: The last epidemic of typhus fever in this part of the world occurred in New York in 1893 and comprised 473 cases, with 200 deaths. During the fifteen years following that date, Dr. Brill of New York reported several hundred cases, presenting a syndrome which he considered original. The title of his paper was "A New Disease Which in Some Respects Resembles Typhus Fever." In 1912 Anderson and Goldberg practically proved by inocula-

Kapsinow[2] diverted the bile from the intestine to the kidney pelvis by a cholecystonephrostomy and observed that duodenal ulcers developed in approximately 40 per cent of the dogs. Berg and Jobling[3] found that duodenal or gastric ulcers appeared in about 60 per cent of their dogs with biliary fistulas. Ivy and Fauley[4] found duodenal ulcers in two out of twenty dogs with the common bile duct obstructed and in six out of sixty-one dogs with pancreatic ducts obstructed.

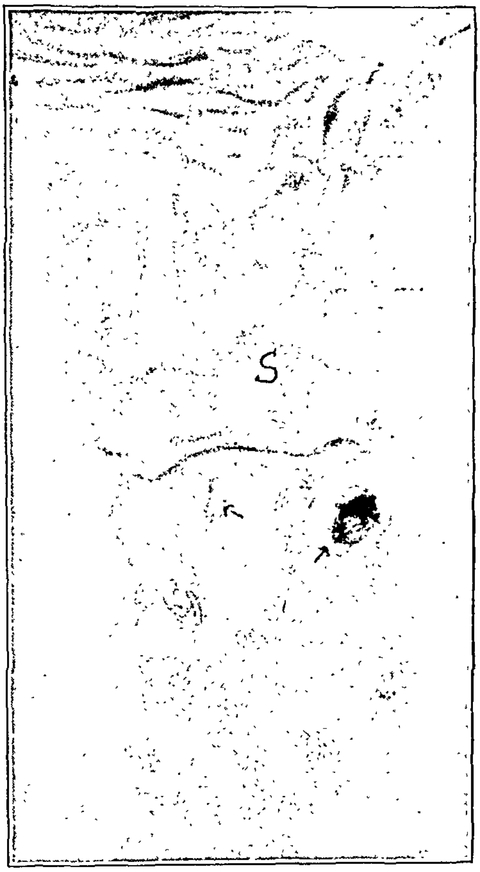

Fig. 2.—Two ulcers of the duodenum in a dog with biliary fistula, seventeen days after the operation. A section of the larger ulcer is shown in figure 3.

Why peptic ulcers should occur under these conditions cannot be stated with certainty at the present time. However, certain facts are known which have a bearing on this question. The generalized nutritional disturbances in the dog with jaundiced, biliary fistula, and in the pancreato-achylic dog are well known.[5] The exclusion of bile or pancreatic juice from the upper intestine obviously alters the normal physiology of digestion and the nutrition of the animal in two ways: (1) Digestion and absorption are incomplete, and (2) the acid chyme is not neutralized in a normal manner as it enters the duodenum. Since pancreatic juice and bile play the most important rôle in neutralizing the acid chyme (succus entericus plays only a rather minor rôle), the exclusion of either of the secretions would interfere with this process, which normally occurs in the duodenum. Although hepatic bile is frequently as alkaline as pancreatic juice,[6] the latter in toto plays a more important rôle, because more of it is secreted. However, when the common duct is occluded or when the pancreatic ducts are occluded, the incidence of ulcer in dogs is approximately the same, 10 per cent;[4] but in dogs with biliary fistula the incidence is higher, from 40 to 60 per cent. Mann and Williamson[7] transplanted the pancreatic and bile ducts to the lower portion of the ileum and observed 30 per cent of acute and 16 per cent of chronic duodenal ulcers. Ivy and Fauley[4] diverted the bile and total pancreatic juice to the lower part of the ileum and observed 10 per cent of chronic duodenal ulcers. So there apparently exists in dogs with biliary fistula some other factor than failure of neutralization of acid chyme that accounts for the higher incidence of ulcer in such animals. The relation of these procedures to gastric secretion might possibly be an important factor. Still and Carlson[8] found that chronic obstructive jaundice in the dog decreased the motor activity of the stomach and the rate of secretion but increased the acidity. Ligation of the pancreatic ducts in the experiments of Fauley and Ivy[5] decreased the emptying time of the stomach and increased the rate of secretion. No data have been reported on the effect of a biliary fistula on gastric function, but the question is being investigated. Other possible contributory factors are as follows: Berg and Jobling[3] found that environment apparently influences the incidence of ulcers following biliary fistula, since the incidence dropped from 60 to 30 per cent in their dogs when environmental conditions were improved. These authors suggest also that the effects of biliary exclusion may be to disturb the mechanism of mucous secretion. It should be pointed out that, when a biliary fistula is made by the Rous-McMaster method,[9] the presence of the cannula and tube in the bile duct may irritate the duodenum. This may explain the higher incidence of ulcer in their experiments and in ours than in those of Kapsinow,[2] in which the bile was drained into the renal pelvis.

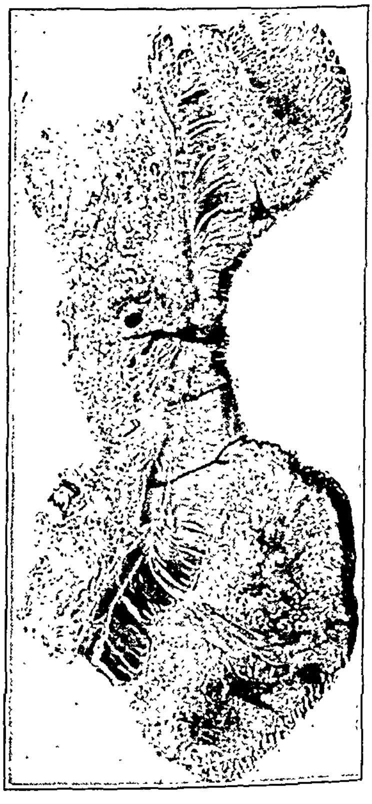

Fig. 3.—Section through the larger ulcer shown in figure 2. Note that the ulcer is about to perforate and that the omentum is adherent in the region of the ulcer.

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[2] Kapsinow, Robert: Ann. Surg. 83: 614 (May) 1926.

[3] Berg, B. N., and Jobling, J. W.: Biliary and Hepatic Factors in Peptic Ulcers, Arch. Surg. 20: 997 (June) 1930.

[4] Ivy, A. C., and Fauley, G. B.: Am. J. Surg. 11: 531 (March) 1931.

[5] Ivy, A. C.: Physiologic Disturbances Incident to Obstructive Jaundice, J. A. M. A. 95: 1068 (Oct. 11) 1930. *Fauley, G. B., and Ivy, A. C.*: Am. J. Physiol. 89: 428 (July) 1929.

[6] Jones, K. K.: Comparison of Buffer Value of Bile and Pancreatic Juice Secreted Simultaneously, Proc. Soc. Exper. Biol. & Med. 28: 567 (March) 1931.

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[8] Still, K. S., and Carlson, A. J.: Am. J. Physiol. 89: 34 (June) 1929.

[9] *Rous, Peyton; and McMaster, P. D.*: J. Exper. Med. 37: 11 (Jan.) 1923.

The work done since 1905 has been of a more convincing nature. In 1917, Smith[8] was able to prevent fetal myxedema by feeding the pregnant sow either 5 grains (0.3 Gm.) of sheep thyroid or 15 grains (1 Gm.) of potassium iodide daily. In this connection it may be of interest to quote the work of Courrier and Aron,[9] although the use of potassium iodide is not involved. Fresh ox and hog thyroids were fed in large quantities to dogs and guinea-pigs throughout gestation. Marked changes occurred in the mothers' thyroids, but no gross or microscopic change was observed in the thyroids of their fetuses. If administration of thyroid to the mothers was continued after delivery, and the young were permitted to nurse, a change in the thyroids of the nurslings was perceptible in a week. The conclusion drawn by these workers was that the placenta is not permeable to the thyroid hormone.

In 1896, Halstead[10] found that if most of the thyroid gland was removed before or in the early stages of pregnancy, and rigid steps were taken to exclude available iodine, the pups at birth had enlarged thyroids. In 1908, Marine[11] repeated these experiments and extended them to show that if minute doses of iodine were given to a pregnant bitch which had three fourths of her thyroid gland removed the puppies at birth had normal thyroids.

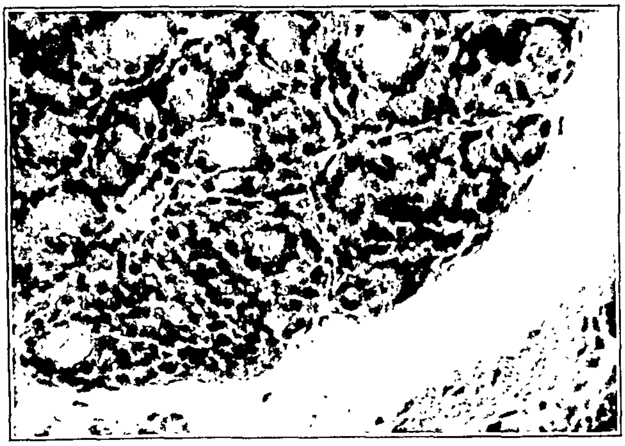

Fig. 1.—Control fetal thyroid, showing small amount of colloid.

As to the amount of iodine present in the fetal thyroid at birth, Marine and Lenhart say:[12]

> In puppies whose mothers have been fed iodine we detected it in glands at birth in all cases, while we have not detected any iodine in the thyroids of puppies whose mothers had not been fed iodine during pregnancy. Nagel and Roos have recorded similar observations. Hunt and Seidell from the results of their examinations and experiments favor the view that iodine is not uncommonly absent at birth and that the protection which such thyroids offer to mice against acetoniril poisoning may be due to some other constituent of the protein. From the above references to recorded observations it is seen that iodine to the extent of mere traces has not been found in most cases. However, findings negative to the tests at present in use do not mean that iodine was altogether absent, and before it can be said that iodine is normally absent at birth more accurate methods of iodine determination must be devised.

The method then in use was the older colorimetric method not accurate to more than 0.05 mg. Since then a number of good methods have been devised, the best probably being those of Kendall,[13] McClendon[14] and von Fellenberg.[15] Kendall's is accurate to 0.005 mg. and both McClendon's and von Fellenberg's to 0.001 mg.

I elected to use Leitch and Henderson's modifications[16] of the von Fellenberg method, and was able to demonstrate the presence of iodine in the thyroids of all fetuses whether their mothers had been given potassium iodide or not.

The animal chosen for this work was the rabbit, partly because of its short period of gestation, twenty-eight days, and partly because, given suitable conditions as to food, temperature and environment, it will breed at all times of the year. The animals were divided into two groups: control and experimental. The two groups were given the same food and water, and the experimental animals received in addition a definite amount of potassium iodide daily. Very careful precautions were taken that the control animals should not be influenced by iodine from any other source than their food. The rabbits were given food and water twice a day. The water was triple distilled. The food obtained from a goiter belt consisted of oats, wheat middlings, carrots with their skins, and cabbage. The amount of iodine in these foodstuffs in γ per hundred grams of food is as follows: oats, 1;[17] wheat middlings, not known; carrots, 0.23;[17] cabbage, 0.6.[15] The amount eaten daily by each animal was not determined, but the amount of iodine it contained must have been small when one considers that 1 mg. = 1,000 γ. Small as these quantities were, however, they were almost, if not quite, sufficient to meet physiologic requirements, as shown by the fact that the average percentage of iodine obtained from the thyroids of the control adults was 0.011 mg. per hundred milligrams, while the normal average given is 0.016 mg. per hundred milligrams.[18]

Pregnancies were rare both in the control and in the experimental groups while they were continually confined to their cages. As soon, however, as they were permitted to play around in the open air a few hours a day they seemed to become impregnated with relative ease.

One important difficulty encountered was the tendency of the rabbits to eat their young. In some cases a whole litter of from eight to ten rabbits was eaten within an hour of birth; and there were very few litters, indeed, in which some of the young had not been destroyed, until I borrowed the idea of the obstetric cage from Evans and Long.[19]

The mothers were killed immediately after delivery and their young immediately after birth. The thyroids were at once removed, those of the fetuses under a dissecting microscope. As the average weight of a lobe of for the control group is ± 0.92 γ and for the experimental group 20.9 γ. If these errors are each multiplied by 3.35 the true mean becomes 11 ± 3.08 γ for the control groups and 102.6 ± 70.01 for the experimental groups in ninety-nine out of a hundred of such groups. In this connection it should be explained that the high standard error of the mean for the experimental maternal group is for the most part due to the widely different doses of potassium iodide given daily to the different animals in this group. Further examination of table 2 shows that there is a considerable difference in the iodine content of the experimental maternal thyroids when the same amount of potassium iodide is given. This is not surprising when one considers the rapid rate at which iodides are absorbed and excreted and the fact that the amount retained by the body seems to differ in different individuals.

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[8] Smith, G. E.: Fetal Athyreosis: A Study of the Iodine Requirements of the Pregnant Sow, J. Biol. Chem. **29**: 215 (March) 1917.

[9] Courrier, Robert; and Aron, Max: Sur le passage de l'hormone thyroïdienne de la mère au foetus à travers le placenta, Compt. rend. Soc. de biol. **100**: 839-841 (April 8) 1929.

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[16] Leitch, Isabella; [illegible] he Estimation of Iodine in Foodstuffs and Bod[illegible] 1003, 1926.

[17] McClendon, J. F [illegible] nverse Relation Between Iodine in Food and Drink and Goiter, Simple and Exophthalmic, J. A. M. A. **82**: 1668 (May 24) 1924.

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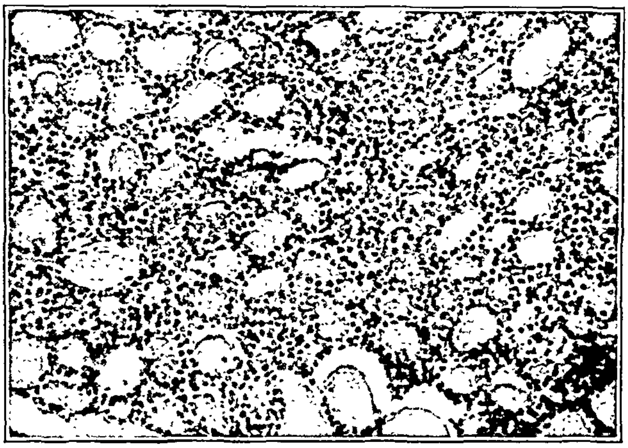

Fig. 3.—Control maternal thyroid, showing small amount of colloid.

Table 3 shows that the amount of iodine absorbed by the thyroids of the experimental mothers depends to some extent on the amount administered, while the amount absorbed by the thyroids of their fetuses remains practically constant whether 20 or 200 mg. is given daily. Whether this is due to limited ability on the part of the fetal thyroids to absorb iodine or on the part of the placenta to allow iodides to pass can at present only be surmised.

Table 3.—*Amount of Iodine Absorbed by Mothers and Fetuses*

Mg. KI to Experimental Mother Daily	γI_2 per 100 Mg. Thyroid	
	Experimental Mothers	Experimental Fetuses
20	34	22
20	26	24
100	75	22
100	101	26
100	142	27
100	142	27
100	136	29
200	165	29

It may be of interest also to note whether thyroid tissue increases in weight with increase in the amount of its iodine content. Table 4 shows that while approximately 24,000 Gm. of control animal tissue yields 1,200 mg. of thyroid, 23,000 Gm. of experimental animal tissue yields 1,700 mg. of thyroid. So, in table 1, approximately the same number of lobes (representing approximately the same amount of animal tissue) weighed 268 mg. in the control group and 397 mg. in the experimental group. This seems to be a sufficiently definite increase. However, if one takes into account the standard error of mean and applies it to a large series, there will be no significant difference between the mean of the control and that of the experimental group in the case of either the mothers or their fetuses.

Histologic studies confirm the biochemical observations. It was first shown by Oswald[20] and later by Marine[21] and many others that the iodine content of the normal thyroid gland varies in general with the amount of stainable colloid. I have placed side by side sections of control and experimental thyroids representing both the maternal and the fetal groups. The excess of colloid in photomicrographs 2 and 4 over that in photomicrographs 1 and 3 is at once apparent.

Table 4.—*Comparative Yield of Thyroid from Control and Experimental Tissues*

Mothers				Fetuses			
Weight of Animal, Gm.		Total Weight of Lobes, Mg.		Number of Lobes		Total Weight of Lobes, Mg.	
Control	Experimental	Control	Experimental	Control	Experimental	Control	Experimental
2,837	3,518	142.5	286.0	6	6	12.6	41.0
2,724	2,043	138.0	167.0	5	10	8.4	61.1
2,837	2,951	149.0	232.0	12	7	39.2	45.0
3,518	2,497	161.0	131.5	8	6	54.4	43.4
3,291	2,610	202.6	122.0	10	12	50.3	69.6
3,064	2,383	154.8	179.3	14	8	39.9	31.6
2,497	2,951	124.0	212.5	6	8	27.5	28.1
3,064	3,064	141.6	393.2	8	10	35.3	76.9
23,832	22,017	1213.5	1723.5	69	67	267.6	396.7

SUMMARY AND CONCLUSIONS

1. Inorganic iodides, given to the mother, pass through the placenta and are absorbed by the thyroid of the fetus.

2. The thyroids of mothers on a low iodine diet contain an average of 11 γ of iodine per hundred milligrams of tissue.

3. The thyroids of mothers who are given 100 mg. of potassium iodide daily, in addition to a low iodine diet, contain an average of 127 γ per hundred milligrams of tissue.

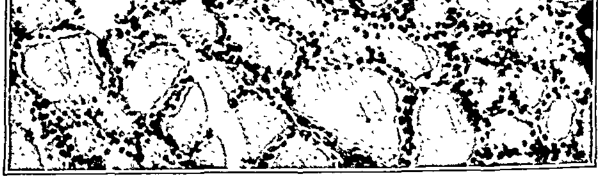

Fig. 4.—Experimental maternal thyroid, showing acini markedly distended with colloid.

4. The thyroids of fetuses whose mothers have received a low iodine diet yield an average of approximately 13 γ of iodine per hundred milligrams of tissue.

5. The thyroids of fetuses whose mothers have been given large amounts of potassium iodide in addition to

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20. Oswald, A.: Ueber den Jodgebalt der Schilddrüse, Ztschr. f. Phys. **23**: 265, 1897.

21. Marine, David: The Present Status of the Functions of the Thyroid Gland, Physiol. Rev. **2**: 521-551 (Oct.) 1922.

cases for tuberculosis, and Hamilton[9] estimates that at least 25 per cent of all patients admitted to tuberculosis sanatoriums are nontuberculous.

VARIOUS METHODS OF INTRODUCING OPAQUE OIL INTO THE BRONCHI OF CHILDREN

Preparation.—On the evening and morning preceding the bronchography, the child should be given postural drainage in order to enable him to expel as much secretion as possible. Breakfast should be omitted. An appropriate dose of codeine and atropine should be administered hypodermically about one hour before the operation.

There are four methods available for bronchography in children, as follows: (1) puncture through the cricothyroid membrane; (2) introduction of a catheter through the glottis; (3) the bronchoscopic method, and (4) the intubation method.

Cricothyroid Puncture.—Cricothyroid puncture as a preliminary to bronchography was first practiced in adults by Sicard and Forestier[10] in 1923 and subsequently was applied to children by Sergent and Cottenot.[11] In France and England it still remains the favorite procedure. The overlying skin and the cricothyroid membrane are infiltrated with a solution of procaine hydrochloride, and a curved trocar and cannula[12] resembling a miniature tracheotomy tube is then forced through the membrane into the larynx. The escape of air through the cannula indicates that the instrument is in proper position. A few cubic centimeters of a procaine solution (3 per cent) is then injected through the cannula into the trachea to anesthetize the mucous membrane and check the cough reflex. This is followed by the injection of the oil. Findlay and Graham[13] recommend the use of general anesthesia in children before making the puncture, since it is difficult to prevent young subjects from swallowing, and this interferes with the puncture.

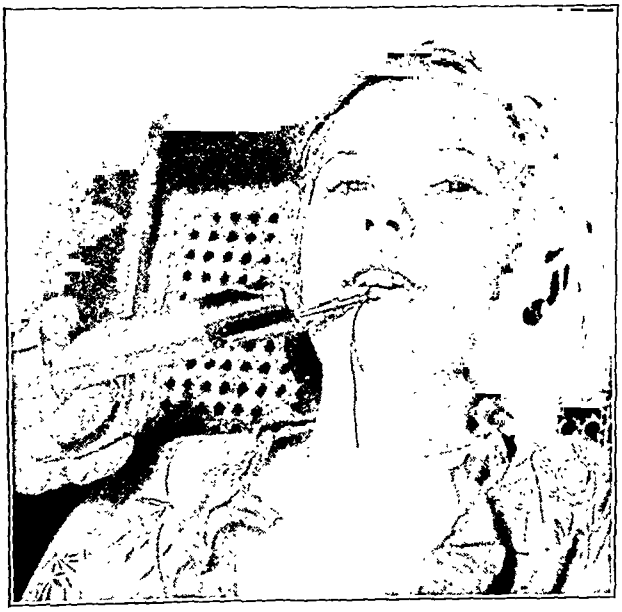
Fig. 1.—Patient with intubation tube in situ and syringe, containing iodized oil, attached to a rubber tube projecting from the mouth.

Excellent roentgenograms are obtained by the puncture method, but it is open to serious objections owing to the possible complications, such as subcutaneous emphysema, or the escape of some of the oil into the pretracheal cellular tissues.[12] I have personal knowledge of an injection by an expert in which all the oil was deposited in the neck and the mediastinum. The patient developed a cyst at the site of the puncture and also a perichondritis. Recovery took place after several months. Negus[14] reported a fatal case of mediastinitis after cricothyroid puncture. Owing to the dangers of this method, it should be discarded in favor of some simpler procedure.

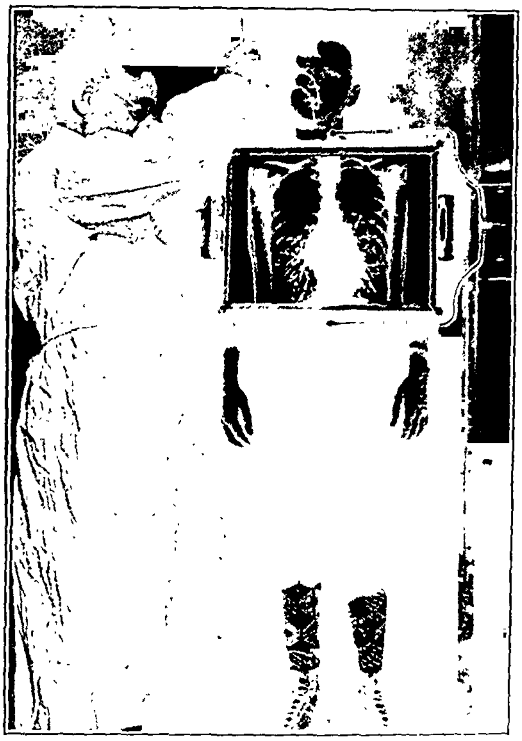
Fig. 2.—Composite picture demonstrating the intubation method of intrabronchial injection behind the fluoroscopic screen.

The Catheter Method.—This method consists in introducing a flexible catheter through the cocainized larynx. This method is employed by Sgalitzer,[15] Haslinger,[16] Myerson,[17] Reichle,[4] Stitt[18] and others. The simplicity of this technic recommends it, and it can readily be carried out in adults. However, the procedure is more difficult in children, who may not permit the cocainization or who may pull out the catheter, which is not self-retaining unless the patient holds it the direction of the flow is controlled by gravity so that any desired lung field may be injected.

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[9] Hamilton, W. F.: Nontuberculous Pulmonary Disease, Arch. Surg. **14:** 218 (Jan.) 1927.

[10] Sicard, H., and Forestier, I.: Methode générale d'exploration radiologique par l'huile iodée (lipiodol), Bull. et mém. Soc. méd. d. hôp. de Paris **46:** 463 (March 17) 1922; l'huile iodée en clinique; applications therapeutiques et diagnostiques, ibid. **47:** 309 (Feb. 23) 1923.

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[16] Haslinger, F., in discussion: München. med. Wchnschr., April 9, 1925, p. 422.

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[18] Stitt, H. L.: Bronchial Aspiration and Irrigation with a Hypertonic Saline Solution, J. Med. **8:** 112 (May) 1927.

A diagnosis can frequently be made during the fluoroscopy. In order to obtain the most perfect pictures, the injection of any alveoli should be avoided. From 10 to 20 cc. of iodized oil is usually sufficient to delineate the bronchi in children, although more oil may be required if large cavities are present.

The roentgenograms are then immediately taken, with the patient in either the upright or the horizontal position (figs. 3, 4 and 5). At times it is advisable to take the pictures in both positions in order to demonstrate changeable fluid levels. Stereograms and lateral views may also be taken but, owing to superimposition, the lateral view is confusing if both lungs have been injected.

It is advisable not to remove the intubation tube before the films are made, since the extraction of the tube excites a cough reflex which tends to scatter the oil within the lungs.

I have employed the intubation method on several hundred adults and on a limited number of children, and, with one exception, no bad results which could be attributed to the intubation have been observed. In one case, that of a girl aged 13, a peritracheal abscess developed several days after the procedure. This complication may have been due to the use of an oversized intubation tube or to a bronchoscopy which I performed on the second day after the intubation. The abscess was opened and successfully drained after the patient had returned to her home.

ADVANTAGES

The intubation method in children has certain advantages which may be enumerated as follows:

1. It is a simple and safe procedure which can be carried out in the office as well as in a hospital.
2. It can be used in children by any physician who has mastered the art of intubation and does not require a trained corps of assistants.
3. Combined with fluoroscopy, it affords a visual method of bronchography with the entire lung field under observation during the injection. Confusing injection of the alveoli can be minimized or avoided and sharp images can be obtained.
4. A diagnosis can frequently be made during the fluoroscopy.

SUMMARY AND CONCLUSIONS

1. The injection of iodized poppy-seed oil into the bronchi clearly demonstrates many lesions which are obscure in the ordinary roentgenogram.
2. Studies in recent years have demonstrated that many chronic pulmonary diseases begin during childhood.
3. Early diagnosis is of great importance if any marked progress is to be made in the treatment of nontuberculous pulmonary infections in children.
4. Of the various methods available for bronchography in children, the use of the intubation tube is the most practical, especially since it can be carried out by any physician who can perform intubation.
5. Bronchography and fluoroscopy should be carried out at the same time.
6. If positive bronchographic results are obtained, it is usually advisable to examine the bronchi with the bronchoscope before beginning treatment.

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ABSTRACT OF DISCUSSION

Dr. Louis H. Clerf, Philadelphia: The relatively frequent occurrence of bronchiectasis in children, the difficulties encountered in its diagnosis by physical examination, and the usual roentgen studies, render lung mapping a highly useful diagnostic procedure. The importance of an accurate diagnosis is further emphasized by the fairly satisfactory results that can be secured by bronchoscopic treatment if the bronchiectasis is recognized early. Any method of lung mapping that can be safely employed and that gives uniformly good results in children should be the method of choice. I agree with Dr. Iglauer that the cricothyroid puncture method in children is dangerous and unsatisfactory. Any method that requires general anesthesia is certainly not indicated in the presence of bronchial or pulmonary suppuration. The intubation method, as practiced by Dr. Iglauer, is satisfactory and productive of excellent results. Because of certain technical difficulties encountered in each method, it is obviously impossible for one to become equally proficient in the practice of all four methods. For that reason I have adhered to the use of the bronchoscopic method. Although the technical difficulties are greater than in the other methods, more data are secured. Direct inspection of the larger bronchi, securing an uncontaminated specimen of secretion for bacteriologic study, removal of pus before introduction of the iodized oil, accurate placement of the opaque material by direct vision and fluoroscopic guidance and an opportunity, when desirable, to remove a considerable portion of the oil before withdrawal of the bronchoscope seem to me to be distinct advantages when carrying out complete studies in any case of suspected bronchiectasis.

Dr. Eugene P. Pendergrass, Philadelphia: Absolutely normal roentgenograms will be found even when early bronchiectasis is present. Moderate degrees of bronchiectasis give shadows that simulate dark shadows. And finally, by using the method represented by the last slide one finds a large area of increased density in the lower lobe and one is not able to call attention to any especially dense shadow. That is, in ordinary study; and when one uses Bucky diaphragm films one will get differential shadows that will give information. Another fact is that after the use of iodized oil one is not able to get a definite interpretation of the chest in follow-up examinations for from three to six months because of the retention of the oil in the alveolar spaces and the foreign body reaction around the oil. The importance of the use of the fluoroscope has been stressed by Drs. Iglauer and Clerf, and I wish also to stress that point, first, because it locates the position of the lung in which the oil is being introduced; secondly, it prevents any overfilling of the lung; thirdly, it enables one to determine the appearance before the lung is distorted, and, finally, I believe it is possible to do fluoroscopy by the biplane method in many positions, and one can make roentgenograms in the position in which the oil is being instilled.

Dr. Howard L. Stitt, Cincinnati: I have had the good fortune to observe Dr. Iglauer's intubation tube method of bronchial mapping from its incipience. Though I use a curved tip semisoft rubber catheter, I heartily indorse and realize the advantages of the intubation tube method. The intubation tube is easy to introduce, the child is free to walk around after its introduction, and an assistant is not required to hold the tube in place for fluoroscopic examination and stereoroentgenograms while the catheter must be held in place by an assistant, at all times, to prevent the child from coughing or pulling it out. There is better cooperation on the part of the patient because, as Dr. Iglauer says, "He hasn't anything to say about it." The patient cannot cough up the oil because the intubation tube fits snugly in the laryngeal orifice. There is no interference with breathing, whereas with the catheter he has to breathe around it. I feel sure that in every case of chronic bronchitis in children that is not of tuberculous origin the pediatrician or the general practitioner should give an injection of iodized oil by this method. Then if there are any indications for a bronchoscopy it can always be done afterward for visualization of any lesion that might be present.

Dr. Fletcher Woodward, University, Va.: It has been difficult for us to get good roentgenograms of the chest with injections of iodized poppy-seed oil. We tried the bronchoscopic bearing-down sensation in the pelvic region. She felt greatly depressed but did not feel dizzy or faint. She had an urgent desire for evacuation of the bowels on account of a sensation of pressure on the rectum, and thought the evacuation would relieve the pain. However, she was unable to defecate, and repeated enemas only resulted in the return of the solution used. She was alarmed and felt as though she were going to die. A physician was called, who administered a sedative which gave only partial relief. The day following (August 2), the pain became less severe, but she continued very much depressed. August 4 the pain suddenly recurred with increased severity, and she was found by her husband in a semiconscious state. She was taken immediately to my office and after examination was sent to the hospital for immediate operation.

The past history and family history were not significant. Menstruation had been normal since onset at the early age of 12, until the present trouble. The last menstruation was about May 15, and, thinking that she might be pregnant, the patient had consulted a physician but was told that it was too early for a definite diagnosis of pregnancy to be made. She had had only one pregnancy, seventeen years before, which was normal in every respect.

The patient was middle aged, rather poorly nourished, very pallid, and evidently in great pain and shock. The tongue was dry and coated. The skin was very cool and pale. The abdomen was negative to palpation except for tenderness over both lower quadrants. Pelvic examination showed that the perineum was only slightly relaxed; on attempting to make a vaginal examination, I found that the posterior vaginal wall was pushed so far forward toward the symphysis by a mass behind it that it was difficult to introduce the examining finger past it. The anterior lip of the cervix could barely be palpated, as the cervix and uterus were displaced so far upward as to be almost beyond the reach of the finger. On insertion of the finger into the rectum, a mass the size of a small grapefruit was encountered bulging into the rectum from the anterior aspect just about 2 inches (5 cm.) above the anus. The sphincter was markedly relaxed, and by slightly retracting it with the fingers a globular dark bluish mass was brought into view. Examination of the blood showed a hemoglobin of 75 per cent and leukocytosis of 13,200, with 78 per cent polymorphonuclears. The urine showed a trace of albumin and three plus pus.

Fetus and placenta in case of primary abdominal pregnancy.

A tentative diagnosis of an unusual type of extra-uterine pregnancy complicated by hemorrhage was made and immediate surgical treatment arranged for.

When the patient was taken to the hospital, the first plan was to proceed with immediate laparotomy without any interference through the rectum or vagina. However, on repeating the rectal and vaginal examination after spinal anesthesia had been administered, I changed my opinion because of the desperate condition of the patient and because it seemed that the mass bulging into the rectum was already on the point of rupture. It was thought that a simple puncture and evacuation of the contents of the mass, evidently a blood clot, might be sufficient for the present. On puncture of the mass through the rectum, a large quantity of blood clot was evacuated and then a quantity of fluid blood appeared and continued to flow, and this seemed to render laparotomy imperative, despite the danger of peritonitis and the certainty of a subsequent fecal fistula. A bimanual examination by rectum was repeated after evacuation of the blood clot and revealed the uterus slightly enlarged, freely movable and in a very high position, with the cervix located high up toward the promontory of the sacrum. A mass the size of an orange, firmly fixed in the culdesac, could still be felt below and behind the uterus.

When the abdomen was opened, a large quantity of fluid and clotted blood was evacuated, after which a placenta and fetus were uncovered, situated in the culdesac. The placenta was attached to the peritoneum of the floor of the culdesac, the anterior wall of the rectum, and the lower portion of the posterior aspect of the cervix. The tubes were identical and normal, showed no evidence of previous rupture and were not in any way attached to the mass, being some 2 or 3 inches away from the point of attachment of the placenta to the peritoneum. The fetus and placenta were shelled out, and the pelvic peritoneum around the cavity was brought up to the parietal peritoneum at the line of incision and sutured completely around; by this means the general peritoneal cavity was sealed off and the space between the uterus and the rectum was marsupialized. This space was packed with gauze.

As was expected, a stormy convalescence ensued. The patient rallied somewhat from the preoperative shock under administration of a large quantity of saline solution by hypodermoclysis, but the condition was still so desperate that a transfusion seemed urgent. After transfusion of 500 cc. of citrated blood, the patient showed marked immediate improvement, which was sustained. The fecal fistula that became apparent after the packing was removed proved obstinate and did not finally heal until September 20, forty-seven days after the patient was admitted. The patient was discharged from the hospital, September 22.

The laboratory examination of the specimen was made by Dr. A. H. Braden, who reported as follows: The fetus weighed 64 Gm. The total length from the vertex to the heels was 14 cm. The length from the vertex to the coccyx was 10 cm. The external ear measured 7 mm. The weight of the placenta was 65 Gm. From the foregoing data one would judge the pregnancy to have been of about four months' duration.

COMMENT

This case presents interesting features and much basis for discussion as to the proper management. It is surprising that, from the cessation of menses in May until the crisis in the condition developed in August, the condition had not given symptoms. It is undoubtedly true that a great increase in the size of the mass occurred shortly before the patient came under my care, following a hemorrhage. This sudden increase in the size of the mass, with the bulging into the anterior rectal wall, explained her most prominent symptoms of pain and desire for defecation, and the recent hemorrhage explained the condition of shock in which she was when I first saw her.

There is also ample cause for difference of opinion as to the best method of procedure in this case. Although Nather and Ochsner[13] have furnished a precedent for evacuation of abscesses in the culdesac by the rectal route, there is grave question of the wisdom of this approach in a case such as this. I can justify the procedure only by the hope that I entertained of relieving the condition without recourse to laparotomy in a desperately shocked patient, who presented a mass already on the point of rupture into the rectum.

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[13] Nather, K., and Ochsner, E. W. A.: Surg., Gynec. & Obst. 37: 665-673 (Nov.) 1923.

the cases, the mercury or bismuth was administered concurrently with the arsphenamine; in others it was administered alternately, while in a third group the supplementary treatment overlapped the arsphenamine course.

In table 1 we estimated the average time for the disappearance of visible lesions and the amount of treatment received up to that time.

In thirteen cases of primary syphilis (table 1A) treated with arsphenamine, we found that the time which elapsed before the chancre was entirely healed averaged 9.8 days; for the same number of cases treated with neoarsphenamine, the average was 21.3 days; for five cases treated with silver arsphenamine, 13.4 days. The average amount of arsphenamine was 1.05 Gm.; of neoarsphenamine, 2.96 Gm. and of silver arsphenamine, 0.97 Gm. The average number of injections was 2.6 for those with arsphenamine, 4.8 for neoarsphenamine, and 4.4 for silver arsphenamine.

In our group of secondary cases, the time counted is that required for the disappearance of both primary and secondary lesions, *if one persisted after the other had* cleared up. Thus, in several instances in which the chancre failed to heal until after the rash had faded out, the later date was the one counted.

In the twenty-nine secondary cases (table 1B) treated with arsphenamine, the visible lesions disappeared in an average of 17.5 days; in the forty-five cases treated with neoarsphenamine, the average time was 23.7 days, and for the ten treated with silver, 25.3 days. The average amount of the drug given was 1.43 Gm. of arsphenamine in 3.98 average injections, 3.3 Gm. of neoarsphenamine in 6.18 injections and 0.899 Gm. of silver arsphenamine in 4 average injections.

Thus, results indicate a fewer number of injections, a smaller quantity of the drug and a shorter time for the disappearance of lesions in both the primary and the secondary cases treated with arsphenamine than with either of the other products.

TABLE 1.—*Average Time and Treatment Required for Disappearance of Visible Lesions*

Drug	Number of Cases	Average Amount Received, *Gm.*	Average Number of Injections	Average Time in *Days*	Clinical Relapses	
					Number	Per Cent
		A. Primaries (Seropositive, Seronegative)				
Arsphenamine	13	1.05	2.6	9.8	1	7.7
Neoarsphenamine	13	2.96	4.8	21.3	1	7.7
Silver arsphenamine	5	0.97	4.4	13.4	0	0
		B. Secondaries				
Arsphenamine	19	1.43	3.98	17.5	0	0
Neoarsphenamine	48	3.30	6.18	23.7	8	16.7
Silver arsphenamine	10	0.899	4.0	25.3	0	0

It should be understood that in the case of clinic patients, who attend as a rule at longer intervals than private patients, the time recorded usually represents the date on which the physician first noted, for example, that the rash was entirely faded out. In many instances the actual date would be several days earlier, but there seemed to be no way of fixing a more accurate norm when dealing with large numbers of case reports. The final figures are correspondingly conservative.

In table 2 A we show the figures from our inquiry into the time required for the Wassermann reactions to become negative; also the average treatment in grams, together with the number of injections. Patients treated with more than one arsphenamine were included in the count only when the reversal of the Wassermann reaction occurred under the first arsphenamine. Only Wassermann reactions reported negative with both antigens were counted.

Here, also, allowance should be made for the fact that some clinic patients who were Wassermann-positive at the beginning of a course of treatment might have shown a negative Wassermann reaction at the end if they had returned for their blood test as scheduled. In such cases, the date counted was that of the first negative Wassermann reaction recorded after the patient returned to continue his treatment, a factor which undoubtedly makes the computed averages considerably higher than the actual ones.

TABLE 2.—*Average Time and Treatment Required for Wassermann Reaction to Become Negative*

Drug	Number of Cases	Average Amount Received, Gm.	Average Number of Injections	Average Time in Days	Serologic Relapses	
					Number	Per Cent
		A. Seropositive Primaries				
Arsphenamine	18	3.13	7.26	38.2	1	5.5
Neoarsphenamine	12	5.51	10.41	81.6	0	0
Silver arsphenamine	2	3.73	17.0	85.0	1	50
		B. Secondaries				
Arsphenamine	85	4.15	10.07	83.4	4	4.7
Neoarsphenamine	98	7.3	13.8	105.1	30	30.6
Silver arsphenamine	6	2.8	12.5	101.6	3	50.0

For the eighteen seropositive primary cases treated with arsphenamine, the time averaged 38.2 days; for the twelve cases treated with neoarsphenamine, the time was 81.6 days, and for the two cases in which silver arsphenamine was used, 85 days. The average amount of arsphenamine necessary to produce the negative Wassermann reaction was 3.13 Gm. in 7.26 injections; the average amount of neoarsphenamine was 5.54 Gm. in 10.41 injections, and of silver arsphenamine 3.73 Gm. in 17 injections.

The eighty-five patients with secondary syphilis (table 2 B) treated with arsphenamine received an average of 4.15 Gm. in 10.07 injections, requiring 83.4 days before the Wassermann reaction became negative. The ninety-eight treated with neoarsphenamine received an average of 7.3 Gm. in 13.8 injections, requiring 105.1 days up to the first negative Wassermann reaction.

Here, again arsphenamine presents the most favorable estimate, especially when we compare the following primary group averages:

The 3.13 Gm. of arsphenamine contain 97.03 mg. of metallic arsenic.

The 5.54 Gm. of neoarsphenamine contain 110.08 mg. of metallic arsenic.

The 3.73 Gm. of silver arsphenamine contain 70.87 mg. of metallic arsenic and 52.22 mg. of metallic silver.

The averages for the secondary cases compare thus:

The 4.15 Gm. of arsphenamine contain 128.65 mg. of metallic arsenic.

The 7.3 Gm. of neoarsphenamine contain 146.00 mg. of metallic arsenic.

The 2.80 Gm. of silver arsphenamine contain 53.20 mg. of metallic arsenic and 39.20 mg. of metallic silver.

In short, with arsphenamine the Wassermann reaction becomes negative in a shorter period, under a smaller amount of the drug and with fewer injections.

Furthermore, the proportion of relapses of the Wassermann reaction in table 2 is smaller under treatment with arsphenamine than with either of the other drugs, these showed serologic relapses and two, clinical relapses; seven patients had spinal fluid tests; in five the results were negative and in two, positive. There were no cases in the latent group that were treated with silver arsphenamine.

In the seronegative group and the latent cases, we had fewer relapses with arsphenamine than with either of the other drugs. The Wassermann reactions in the latent cases that became negative did so in a shorter period of time.

In order to compare our seropositive primary, secondary and latent groups more readily, we made table 4, tabulating the results based on the first negative Wassermann reaction and the serologic relapses. Omitting the latent cases of syphilis and combining the total averages of the primary and secondary groups, we had figures contrasting thus: In 132 cases treated with arsphenamine there was an average of 84.7 days up to their first negative Wassermann reaction. Nine of these patients, or 6.8 per cent, had a serologic relapse.

The group of 153 treated with neoarsphenamine required 113.9 days as an average to reduce their Wassermann reaction. Forty, or 26.2 per cent, had a relapse.

Eight cases treated with silver arsphenamine averaged 96.6 days before the negative Wassermann reaction and four, or 50 per cent, relapsed serologically.

Table 4.—*A Comparison by Drug of Results Based on First Negative Wassermann Reaction and on Serologic Relapses*

Drug	Seropositive Primaries				Secondaries				Latent*				Totals			
	Number of Cases	First Negative Wassermann Reaction, Average in Days	Serologic Relapses		Number of Cases	First Negative Wassermann Reaction, Average in Days	Serologic Relapses		Number of Cases	First Negative Wassermann Reaction, Average in Days	Serologic Relapses		Number of Cases	First Negative Wassermann Reaction Average in Days	Serologic Relapses	
			Number	Per Cent			Number	Per Cent			Number	Per Cent			Number	Per Cent
Arsphenamine........	31	63.1	2	6.5	101	85.7	7	6.93	3	55	0	0	132	84.7	9	6.8
Neoarsphenamine.. ..	24	119.8	1	4.1	129	113.0	43	33.3	10	172.9	5	50	153	113.9	40	26.2
Silver arsphenamine..	2	85	1	50	6	101.6	3	50.0	—	—	—	—	8	97.8	4	50.0

* Latent cases not included in totals.

In counting relapses we recorded all ± Wassermann reactions as serologic relapses; probably had we been less strict, the number would have been reduced considerably.

Whenever it was possible we made spinal fluid tests and in a group of 149 cases treated with arsphenamine we were able to examine the fluids of 11 patients; 110 showed negative Wassermann reactions and 1 had a positive Wassermann reaction of the spinal fluid, thus making the proportion of positive reactions in spinal fluids in patients treated with arsphenamine 0.91 per cent.

Out of 197 patients treated with neoarsphenamine, a spinal puncture was done on 106. A positive Wassermann reaction of the spinal fluid was obtained in but five patients, or 4.7 per cent.

Only six of sixteen patients treated with silver arsphenamine had spinal fluid tests; all had negative Wassermann reactions.

In the group of sixty-six patients treated with more than one arsphenamine, twenty-six had spinal fluid tests, and three (11.5 per cent) of these gave positive results. (They were the three positive Wassermann reactions in secondary syphilis.)

All the spinal fluid tests were made after the first eight weeks of treatment, many of them after the second or third course; we think that the low percentage of positive Wassermann reactions may be due to this fact, as well as to the early stage of the disease in which most of the patients began treatment. It is interesting to note that those patients treated with more than one arsphenamine had the highest percentage of positive Wassermann reactions of the spinal fluids, three out of twenty-seven. The patients receiving arsphenamine showed the lowest percentage, 0.91 per cent compared with 4.7 per cent in those receiving neoarsphenamine.

Complications following the administration of arsphenamine were divided for convenience into two groups: immediate reactions and delayed reactions. The only severe immediate reactions reported were the so-called nitritoid crises. Under mild immediate reactions were included:

(*a*) Gastro-intestinal disturbances: nausea, vomiting, diarrhea.

(*b*) Chills and fever (in one case accompanying edema of the face).

(*c*) Mild anaphylactoid reactions.

(*d*) Urticaria and transitory skin eruptions, including three probable Herxheimer reactions.

(*e*) Headaches and general malaise. (Headaches and general malaise reported as occurring repeatedly in the same patient were counted only once.)

Owing to the method of compiling the original data, figures for immediate reactions were available on a limited number of cases only. The majority of these cases, when classified under a particular arsphenamine, were treated exclusively with that one preparation; but a certain number of additional cases, while treated, for example, with arsphenamine, also received, either before or after their arsphenamine courses, neoarsphenamine or silver arsphenamine, the change usually being made on account of individual intolerance or refractory Wassermann reactions. These additional cases are included in the total counts for purposes of this table; consequently the same case may be listed under two or, in an occasional instance, three drugs.

In this entire group only four severe immediate reactions were reported, three of these occurring in patients treated with neoarsphenamine and one in a patient treated with silver arsphenamine. This is equivalent to one reaction for every 53 patients treated with neoarsphenamine, or one reaction to every 1,181 injections of the drug. The ratio for silver arsphenamine would then be one reaction to every 35 patients treated, or one to every 565 injections given. As already implied, no severe immediate reaction was reported in the group of 108 patients who received arsphenamine.

In considering the mild immediate reactions (table 5 A), arsphenamine shows a total of 15 "reacting" patients out of the 108 treated, or an approximate ratio of 1 to 7. Among these 15 patients there were altogether 28 separate reactions, or 1 reaction to every 75 of the rash, antisyphilitic treatment was discontinued and sodium thiosulphate given over periods of three weeks, twenty-one weeks and eighteen days, respectively. The recurrent rash in every case followed the first injection of the new course of arsphenamine. Treatment was again temporarily discontinued in two cases and the drug changed in the third.

It was thought that it might be of some interest to see whether a dermatitis might have any effect on the further course of the syphilis. Investigation of the serologic reactions showed that in the sixteen cases of dermatitis studied in detail, eight which were Wassermann-positive before the dermatitis became negative during the dermatitis and remained negative for varying periods after the dermatitis had cleared up. Since it was the policy to stop arsphenamine treatment and to give sodium thiosulphate on the first appearance of the rash, it is apparent that the reversal of the Wassermann reaction occurred when no antisyphilitic treatment was being received. Obviously, however, any conclusions as to the possible rôle of nonspecific fever therapy would be premature without a larger number of cases and more careful investigation of other factors.

No cases of hemorrhagic encephalitis were reported in any of the patients studied, and none of the cases of dermatitis were of the severe exfoliating type. Several patients reported numbness and tingling sensations, sometimes coupled with pains in the joints. These patients were watched for further symptoms of neuritis, but as the preliminary symptoms subsided in each instance their cases were not classified as neuritis. There was no death attributable to arsphenamine therapy in any of the 436 cases studied.

Among our private cases we found thirty-four which had been observed from four to fifteen years *after* the termination of their treatment, all of which had remained negative both clinically and serologically, with the exception of two.

Twenty-five of the thirty-four patients had been treated with arsphenamine and nine with neoarsphenamine.

In the arsphenamine group we had nine seropositive cases of primary syphilis observed for from five to thirteen years which had been treated intensively and continuously with a total average of 20.5 intravenous injections and 32 mercury injections for a total average of forty-four weeks. These cases became negative at or before termination of the first course of treatment. In one patient, who after his sixth dose missed his injections for three weeks, there developed evidence of an acute cerebrospinal meningitis, and tests of the spinal fluid were strongly positive. He was given intraspinal injections in conjunction with his intravenous and intramuscular treatment. This case required about 150 days to become negative and it remained negative from 1917 to 1927, when the patient died at the age of 56, from cardiac disease. An autopsy done on another of these patients after death from acute alcoholism, five years after his last treatment, revealed no signs of syphilis.

Sixteen secondary cases, treated with arsphenamine and observed from five to fourteen years, had even a smaller total average number of injections of arsphenamine in a period of about fifty weeks. Much of this treatment had been given in Dr. Fordyce's office at a time when there were fewer injections in a course and comparatively larger doses than we give now, and when arsphenamine was the drug most commonly used.

These secondary cases were all negative after their first course of arsphenamine and mercury, and all had negative spinal fluids except one, in which treatment had been interrupted by an attack of pneumonia after the twelfth injection of arsphenamine and the sixteenth injection of mercury. The patient took potassium iodide and mercury by mouth for three months but had no additional treatment. Five years later, he returned with gastric symptoms and, on examination, showed a large liver and spleen and a 3 plus Wassermann reaction with the cholesterol antigen, the alcoholic antigen being negative. His symptoms disappeared under treatment and his Wassermann reaction has now been negative for four years.

In the group of nine cases treated with neoarsphenamine there were three seronegative primary cases which had been under observation about five years since suspension of treatment. One patient who was given eight injections of neoarsphenamine and fifteen injections of mercury had had a negative Wassermann reaction for four years, when he returned with a gumma of the pharynx and a still negative Wassermann reaction, which became positive under a provocative dose of neoarsphenamine. The other two seronegative cases have remained negative.

One patient presenting seropositive primary syphilis had had five intravenous injections of neoarsphenamine and three of bismuth, when a dermatitis, jaundice and nephritis developed. The Wassermann reaction was 3 plus after this treatment but became negative when the complications subsided and both the blood and spinal fluid have remained negative with no further treatment than fifty-four additional injections of a proprietary bismuth preparation at infrequent intervals.

Of five patients with secondary syphilis treated with neoarsphenamine and observed for from four to eight years after treatment, three had a serologic relapse, one of these having also a positive spinal fluid. All these cases became negative again and have remained so.

Summing up our observations from the figures in the tables previously discussed, we can only conclude that, of the three drugs used in our antisyphilitic treatment, arsphenamine has proved in all respects the most satisfactory.

It requires (1) fewer injections; (2) a smaller amount of the drug, and (3) a shorter period of time to give a negative Wassermann reaction, all these factors being greatly to the patient's physical as well as financial advantage.

The reactions, immediate and delayed, that we observed in the group treated with arsphenamine, are slightly fewer than in that treated with neoarsphenamine, and, most important of all, the percentage of relapses is appreciably lower. Although we have been using silver arsphenamine in increasing amounts for a number of years, we had so few cases suitable for this particular analysis that it is unfair to make definite conclusions about its value from our figures. At the present time we are focusing our study on this drug and hope that our results with a larger series of cases will be more enlightening. The statistics on the few cases in this paper would suggest that silver arsphenamine may be more desirable as an antisyphilitic remedy than neoarsphenamine.

Because in some persons an intolerance to one arsphenamine develops, it is necessary to have another for a substitute. Silver arsphenamine has the advantage, with neoarsphenamine, of being already neutralized; it has a lower toxicity than either of the other products, significant as far as the efficacy of the drug is concerned. As to the toxic reactions caused by the arsphenamine group of drugs, one of the most important contributory causes is found in the rapidity of their administration, along with the carelessness in the preparation of the drug for injection. Neoarsphenamine is much more easily administered and enters the circulation usually with great rapidity. I believe the rapid administration of these drugs makes them more toxic and increases the likelihood of reactions far more than when the gravity method of administration is used, as in the giving of arsphenamine. The general practitioner should avail himself of the opportunity to learn the preparation and administration of arsphenamine, for it is a much safer drug than neoarsphenamine.

Dr. J. P. Thornley, New York: I have had experience with over 5,000 cases, and over 50,000 arsenical injections at the United States Public Health Service Hospital in New York during the past ten years. I may also say that we gave 10,000 injections of arsphenamine by the gravity method, with a dosage of 0.7 Gm. a week (0.3 Gm. on one day and 0.4 Gm. on another) before we had our first skin reaction. Then the government allowed me to use neoarsphenamine and before I had given 1,000 injections in the proportion of six to nine, and by the gravity method, we had had three cases of arsphenamine dermatitis, none of them severe. I feel that Drs. Cannon and Karelitz are justified in claiming that arsphenamine is much safer and gives fewer reactions. The only objection to arsphenamine is, as has been brought out, that a very small excess or reduction in the amount of the sodium hydroxide used makes all the difference in the world between a perfectly satisfactory result and a nitritoid reaction or injured veins.

Dr. Samuel Goldblatt, Cincinnati: I wish to ask Dr. Cannon whether or not the technic of his Wassermann reaction was changed at any time during the period of his recorded results. Again, I should like to have a more definite analysis of the type of reactions; that is, what apparently caused the reactions during the use of either arsphenamine or neoarsphenamine.

Dr. Marion B. Sulzberger, New York: While not holding a brief for either neoarsphenamine or arsphenamine, I should like to ask a few questions. The results of Drs. Cannon and Karelitz show that primary lesions apparently heal more quickly and secondaries disappear sooner if the patient is treated with arsphenamine. It seems to me that these are not the most important problems in the treatment of syphilis. We may be tempted to deduce from the observations that also the late results will be better after arsphenamine treatment, but this is by no means proved. It may be important to ascertain whether the primary lesions disappear sooner, or whether the secondaries disappear more quickly, but it is of infinitely greater importance to know whether the patient is more likely to develop dementia paralytica, tabes dorsalis, or other evidences of central nervous system syphilis, and this can be established only in years to come.

Dr. A. Benson Cannon, New York: I wish to correct the impression that we used only the arsphenamines and no mercury and bismuth. We use mercury and bismuth with all our preparations, whether neoarsphenamine, arsphenamine or silver arsphenamine. The treatment was continuous and was given at short intervals. In regard to our technic of performing the Wassermann test, it was the same in all the five years that we were carrying out the investigation. So far as the study has gone for relapses, of the thirty-four patients I followed over fifteen years after treatment the number of relapses was far greater with neoarsphenamine than with arsphenamine.

A Working Truth.—All of us who are engaged in the practice of medicine have a double function; first, the mediation of such knowledge as we possess to our patients for the alleviation or cure of their ailments; and, secondly, to attempt to get nearer the goal of truth, as it applies to our problems. This "emotion of truth," when recognized, is one factor in producing the state of humility, for we are well aware that final and absolute truth is not attainable—all that is attainable is a "working truth."—Dickson, D. E.: Humility in Medicine, *Edinburgh M. J.* **38**:529 (Sept.) 1931.

THE PRESENT STATUS OF THE ANESTHESIA PROBLEM *

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CHICAGO

This paper is the report of a clinical research in the use of anesthetics, which has been carried on in the surgical clinic at Rush Medical College for more than thirty years. This research was undertaken for the purpose of determining the safest, simplest and most efficient anesthetics for use in general surgical work.

In this research, it was found necessary to formulate a scheme of measurement, a yardstick, which could be employed in measuring the various anesthetics and anesthetic methods. The yardstick which was adopted to test the various anesthetics and anesthetic methods and combinations is made up of the following nine requirements:

1. The safety of the patient.
2. The comfort of the patient.
3. The efficiency of the anesthetic agent.
4. Control, avoiding anesthetics which cannot be withdrawn at the first sign of danger.
5. The elimination of psychic trauma through the abolishing of both pain and consciousness.
6. The simplicity and general adaptability of the method.
7. The absence of injurious effects on the organs, tissues and blood.
8. The absence of complications, such as vomiting, headache and delirium.
9. The absence of effects that lower the resistance to organisms such as pneumococci and streptococci.

During the last few years, especially, there has been a period of unrest in anesthesia. Some men, in particular those with little clinical experience and men lacking judicial minds, have adopted and advocated new anesthetic agents and methods of anesthesia, some of which I believe should be criticized and rejected.

It is my purpose to review briefly the subject of anesthesia, to test the various anesthetic agents by the scheme of measurement which my associates and I have devised, and to attempt in a judicial way to determine what anesthetics are today the safest, most efficient and most practical for use in a general surgical clinic. Such an analysis necessarily covers a wide field and represents an exhaustive review of the literature as well as an analysis of our own work. In this brief paper it will be possible to present simply the essential facts of this study with a summary of conclusions.

We have analyzed the following anesthetics and anesthetic methods: chloroform; ether; nitrous oxide gas; ethylene gas; scopolamine and morphine; avertin; amytal and pernocton; spinal anesthesia; infiltration anesthesia; blocking; intravenous anesthesia, general and local; intrarectal anesthesia; intratracheal anesthesia, and intrapharyngeal anesthesia.

We have studied also the subject of mixtures, sequences and various combinations, and have measured each one of these by the yardstick of nine points.

THE VOLATILE ANESTHETICS

Chloroform by Inhalation, Open Drop Method.—1. Chloroform is the most dangerous of all inhalation

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* This article has been slightly abbreviated for publication in The Journal. A reprint containing the complete article will be sent by the author on request.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

Fortunately, no one was injured in any of these accidents.

We have devised a simple scheme to prevent the possibility of static spark in the operating room. The plan consists of the following: We place in the center of the operating room a steel plate made of nonrusting furniture steel, 9 by 12 feet, and about three-sixteenths inch in thickness. This is made up of three plates, each one of which is 9 feet long and 4 feet wide. These are fastened together by a metal strip and copper rivets. The plate is connected with the metal plumbing in the room by copper wire which is covered by a thin metal strip protecting it against injury. On this steel mat are placed the operating table and gas machine. The entire operating staff stands on this mat. Chains are dropped from the operating table and the gas machine to the metal mat so as to make a direct contact. A small metal plate, the size of one's hand, is placed under the patient, and a strip of metal mesh runs from this plate to the under side of the operating table, making a direct connection of the patient with the metal table. A thin coat of mail is used as a covering for the rubber bags, and the breathing tube is connected to the metal frame of the gas machine.

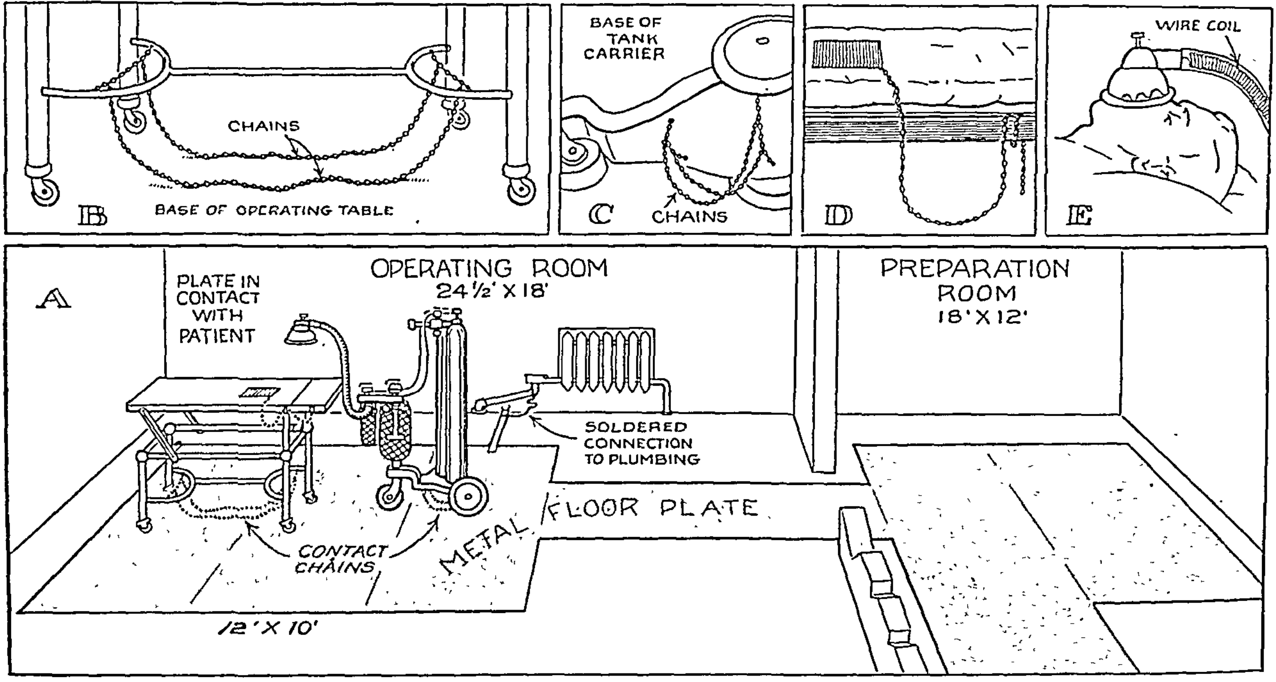
B
CHAINS
BASE OF OPERATING TABLE
BASE OF TANK CARRIER
C
CHAINS
D
WIRE COIL
E
A
PLATE IN CONTACT WITH PATIENT
OPERATING ROOM 24½' X 18'
PREPARATION ROOM 18' X 12'
SOLDERED CONNECTION TO PLUMBING
METAL FLOOR PLATE
CONTACT CHAINS
12' X 10'

Fig. 1.—System of grounding in operating rooms at Presbyterian Hospital: *A*, floor plan of operating room and preparation room; the steel mat with chains dropping down on the mat from the operating table and the gas machine; the copper plate and wire connecting the steel mat with the heating system. *B*, chains connecting operating table with steel mat. *C*, chains connecting gas machine with steel mat. *D*, metal plate with wire chain attached to operating table placed directly under the patient. *E*, coil of wire inside of rubber tubing of gas machine.

We have used this plan in a large number of cases of ethylene anesthesia (in more than 20,000), and this experience confirms the belief that this system of grounding and electrical interconnection does prevent electrostatic sparks. We have had no further explosions since we introduced this system of grounding.

In the new operating rooms which have been built in our hospital since we devised this system, we have been able to devise a system of grounding that is very simple and does away with the metal mat. We have used as a floor a cloisonné terrazzo and while they were making this terrazzo we had put in the terrazzo floor brass strips, 4 or 5 inches apart, which gave the floor a very handsome appearance as though it were made up of tiles of these dimensions. This grill of brass strips is electrically connected and grounded to the steam pipes. This plan has seemed to be as efficient as our metal mat and has the advantage of producing a very good looking floor for the operating room. The general scheme is drawn in outline in the accompanying illustrations.

Those who are interested in introducing this plan into hospitals I refer to Dr. Isabella C. Herb, chief anesthetist at the Presbyterian Hospital, who has been in charge of our anesthetic work for more than twenty years and who has been, more than any one else, responsible for the development of the safe and efficient method of using ethylene.

2. Ethylene has an odor but it is not very disagreeable or irritating to inhale.

3. Ethylene and oxygen are very efficient in producing profound anesthesia as far as freedom from pain and complete unconsciousness are concerned. When complete relaxation of the abdominal muscles is not required, ethylene is in itself an ideal anesthetic. When, however, complete relaxation of the abdominal muscles is necessary, ethylene must often be supplemented by the required amount of ether. Anesthesia can be maintained with from 80 to 85 per cent of ethylene and from 15 to 20 per cent of oxygen.

4. The ethylene can at once be stopped at the first sign of danger and rapidly eliminated from the patient.

5. Does it abolish pain and consciousness? Yes, in a most satisfactory way. It is the most humane of all anesthetics, capable of safely producing prolonged anesthesia.

6. Its simplicity and general adaptability are the same as those of nitrous oxide.

7. There are no after-effects on blood, tissues and viscera.

8. Vomiting occurs in a minority of the cases.

9. It has little or no influence on immunity.

7. There is evidence to show that it can injure the liver.

8. It seems to be very free from complications such as vomiting. It is often necessary, however, to catheterize the patient.

9. It has little effect on immunity.

It seems to me that the wide employment of avertin must be opposed, especially because the physician has practically no control after it is once introduced into the rectum; because the patient may sleep from six to twelve to thirty hours; because, unless the technic is perfect, the administration of avertin may be followed by injury to the bowel mucosa; because the use of avertin carries with it a large mortality, and because we have here in America better and safer anesthetics which can be used in all operations and which are under better control. The elimination of psychic trauma can be secured, when desired in a much better and safer manner with the gas anesthetics, nitrous oxide gas and ethylene. If avertin is to be used at all, it should be limited to a narrow field where it has especial advantages. In a recent article by Dandy of Baltimore its value in brain surgery is emphasized.

An analysis of amytal used intrarectally or intravenously leads one to very much the same conclusions as the study of avertin. I believe that the same applies to pernocton anesthesia, which is still in the experimental stage.

COCAINE AND ITS SUBSTITUTES

Local Infiltration Anesthesia.—Since the introduction of procaine and epinephrine, infiltration anesthesia has become a most important addition to the anesthetic agents.

1. This method is very safe when proper agents are employed and the technic is aseptic. Procaine in diluted doses of from 0.25 to 0.5 per cent in distilled water with the addition of a proper amount of epinephrine seems to be very safe. From 6 to 8 ounces or even more of this solution can be safely employed. In using small amounts of the solution, say, 1 or 2 ounces, 1 drop of 1:1,000 epinephrine should be added to each 200 drops of the 0.5 per cent procaine solution; in using larger amounts, from 6 to 8 ounces, a total of not more than 20 drops of epinephrine should be used. I can find no report of a fatality from 0.25 or 0.5 per cent of procaine. The addition of the epinephrine is most important. It produces a local anemia which prevents rapid absorption and therefore makes the effect both safer and more prolonged. The epinephrine also reduces the bleeding to surprisingly small proportions.

A very definite warning should be given in regard to the use of epinephrine in too great concentration. Epinephrine in what is apparently a very weak solution is capable of producing necrosis of the tissues. I have not seen necrosis when the epinephrine has been 1:100,000; that is, 1 drop to 100 drops of the procaine solution. I believe on the whole, however, that a safer rule would be 1:200,000; that would be 1 drop to each 200 drops of the procaine solution.

I believe that local anesthesia with procaine and epinephrine is a very safe and satisfactory method which should be employed in a large group of cases. I do not believe that the range of local anesthesia should be stretched too far. I am using it in about 30 per cent of my cases.

BLOCKING

By blocking I mean the attempt to anesthetize the field of operation by *infiltrating the nerve supply of* the part proximal to the site of operation, as blocking the splanchnic nerves, the gasserian ganglion, the brachial plexus, the great sciatic and anterior crural, or the internal pudic.

Blocking has a limited field. Blocking of the gasserian ganglion, brachial plexus, and the like should be rejected. These are in themselves important surgical procedures and cannot compete at all with the simpler and safer methods. In dental surgery the blocking of the inferior dental and branches of the superior dental nerves has a very useful field. As a rule, nerve blocking should be limited to the blocking of nerves which appear in a dissection made under local infiltration anesthesia, as blocking the ileo-inguinal nerve in a hernia operation done under local anesthesia.

SPINAL ANESTHESIA

1. Spinal anesthesia is very dangerous, more so than chloroform. Nine deaths occurred in the first 1,000 cases, and although it is difficult to give absolute statistics, there is probably more than 1 death in 500 cases. There were 14 deaths in Greater Boston in the year 1928 in 1,900 cases collected and reported by one of the anesthetists from the Lahey Clinic, Dr. Lincoln F. Sise.

2. Spinal anesthesia is not a comfortable method, especially to an intelligent man who realizes what is being done. Few medical men with their knowledge of anatomy and of anesthesia would choose spinal anesthesia in their own case. The application, therefore, of the Golden Rule should limit spinal anesthesia to a narrow field.

3. The method is not always efficient, and it is necessary to supplement it with other means in from 5 to 10 per cent of cases.

4. When once injected, the agent is beyond control, and if the dose is a toxic one the surgeon cannot rapidly eliminate the drug.

5. It does not produce unconsciousness or eliminate psychic trauma.

6. The method is not simple; it requires special technic and could not be generally adopted.

7. The after-effects on the blood tissue and the viscera are largely expended on the cord, and appear as cord injuries, the so-called aseptic meningitis.

8. The complications are those already described as well as especially persistent and severe headaches lasting for days and weeks.

9. Spinal anesthesia has no effect on immunity.

Spinal anesthesia may have a proper place in a very limited field. It is difficult for me to visualize a field of any extent in which spinal anesthesia is properly the anesthetic of choice.

SPECIAL METHODS OF USING ETHER

Intrapharyngeal Ether Anesthesia.—This is an old method introduced years ago and reintroduced from time to time with changes in apparatus. Souchon developed a simple apparatus. A catheter was introduced through the nose or mouth into the pharynx, and with a hand bulb ether vapor was introduced. Potts, one of my assistants, invented a simple foot bellows to drive the ether vapor. Dr. Isabella Herb has made an apparatus in which the ether vapor is forced by a small air pump driven by an electric motor taking its power from the ordinary electric light plug. The special advantage is that in mouth and jaw work after the patient has been anesthetized by drop ether the mask can be removed, the catheter introduced into the pharynx through the nose or mouth and anesthesia continued without interfering with the operative field.

portion of the abdomen and in the pelvis, and kidney work can be well done under ethylene, perineal work and rectal work under local anesthesia or ethylene, hernia work under local anesthesia or ethylene, operations on both male and female genitalia under local anesthesia or ethylene, and all extremity work under ethylene or local anesthesia. Local anesthesia works admirably in reducing fractures as demonstrated by Boehler's work in Vienna. In such cases, when it is desirable to eliminate psychic trauma, ethylene should be used.

The logic of this scheme of anesthesia is clear and simple. The three anesthetic methods, local, gas anesthesia, nitrous oxide or ethylene and ether, can all be retained under good control; i. e., the anesthetic agent can be stopped at the first sign of danger and in the case of ether and the gas anesthetics can be eliminated rapidly if necessary by artificial respiration. In the case of local infiltration and block anesthesia, fortunately, used in proper strength and amount, there is little danger of toxic effects. A sequence of these three anesthetic measures can be employed so that both anesthesia and abolishment of consciousness can be produced when desired. They can also be employed in such sequence that one can secure the abolishment of pain and of consciousness, and complete relaxation. As an example, in abdominal surgery one can in a given case begin with local infiltration and make the abdominal incision. It is then noted that the patient is mentally distressed; consciousness is abolished with ethylene, and it is discovered that the conditions found at operation demand complete relaxation, which is secured with ether.

One should never attempt to cover a wider field with an anesthetic than it can properly and easily cover. The patient's psychology as well as his safety should be considered. The anesthetic should be employed so that the patient has no pain and no psychic trauma. The one reason for the wide use of avertin in Germany is that avertin puts the patient to sleep and renders him unconscious of the operation. It is a reaction against the carrying of local anesthesia, which they have been employing for some years, to a brutal extreme and forcing it to cover altogether too large a field, and they have not until recently given enough consideration to the wishes of the patient and to the question of psychic trauma.

THE TRAINED ANESTHETIST

Anesthesia must be placed in the hands of trained experts. The trained expert anesthetist is an absolute necessity in a well organized surgical clinic. Women physicians make excellent anesthetists; they are, I think, as a rule, better than men and better than trained nurses. Women doctors, I have found, are especially fitted for this work, and it offers medical women a very interesting and profitable field. The trained anesthetist in America is now more generally recognized as an essential member of a well organized operating team than anywhere else in the world. This is one of the reasons for the fact that so much better work is being done in America in anesthesia than is being done in other countries. Anesthesia is such an important part of surgery that it must always remain in the control of the surgeon. The surgeon is responsible for the entire operation, including the anesthetic. He must decide on the anesthetic and see that it is properly given.

SUMMARY

This means that the use of chloroform, of intraspinal anesthesia, of intravenous anesthesia, of intrarectal anesthesia, of intratracheal anesthesia and of the so-called basic anesthetics, such as scopolamine, avertin and amytal must be limited to very narrow fields. Fortunately, local anesthesia, gas anesthesia and ether afford three anesthetic measures which, if handled by an expert can be used alone or in sequence, with abolition of pain and, if desired, the abolition of consciousness and, when required, complete relaxation, and can secure complete and safe anesthesia for any and all surgical operations. This places anesthesia on a very unpretentious, simple basis, but here, as in all fields of surgery, it finally becomes apparent that simplicity is near truth. The general adoption of this simple scheme of anesthesia will prevent many anesthetic accidents and save many lives.

122 South Michigan Avenue.

Clinical Notes, Suggestions and New Instruments

SUBMUCOUS URETERAL IMPLANTATION INTO THE BOWEL: TWENTY YEAR REPORT ON THE FIRST HUMAN CASE

George W. Middleton, M.D., Salt Lake City

An outstanding surgical advance of recent years has been the development of a method of implanting the ureters into the bowel which reduces to a minimum the danger of ascending renal infection. The present technic depends for its success on valve action secured by having the ureter run for a distance between the muscularis and the mucosa before penetrating the lumen of the bowel.

Coffey[1] conceived the application of the valve principle to transplantation of the bile duct and ureters into the bowel. He also proved its value by animal experimentation. A large number of successful transplantations of the ureters by C. H. Mayo, Coffey and others are now on record. The chapter concerning ultimate results remains yet to be written. On this account the subjoined report of the first human case in which the modern method was used is of considerable interest.

The first case on record in the literature is apparently that of C. H. Mayo,[2] who operated on a child for exstrophy of the bladder, transplanting the right ureter, Feb. 3, 1912, and the left ureter, Feb. 23, 1912. The present previously unreported case, in which both ureters were transplanted at a single operation, antedates this by almost a year.

REPORT OF CASE

R. F., a youth, aged 17, presented himself for treatment early in 1911 in the usual wretched condition of sufferers from exstrophy of the bladder. In spite of the rarity of the condition, I had recently (1910) performed the Peters operation on another patient and had been gratified with a brilliant immediate result. While the result still seemed a complete success and before the subsequent fatal pyelonephritis had developed, the second patient was operated on by the same method. Unfortunately, or in retrospect most fortunately, one of the rosets pulled out of the rectum on the ninth day. This necessitated some other line of attack.

Just at this juncture, Coffey[1] published his experimental work on dogs in which he reported successful transplantation of the common bile duct and ureters by carrying them through the intestinal wall in a slanting manner to provide a valve mechanism. This gave the desired clue. After due preparation by clearing the alimentary canal and giving the patient methylene blue (methylthionine chloride U. S. P.) to make recognition of the ureters easy, a laparotomy was performed, March 1, 1911. A midline incision was made, and each ureter was freed from its distal attachment for a distance of 2¼

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1. Coffey, R. C.: Physiologic Implantation of Severed Ureter or Common Bile Duct into Intestine, J. A. M. A. **56**: 6 (Feb. 11) 1911.
2. Mayo, C. H., and Walters, Waltman: Transplantation of Ureters into Rectum, J. A. M. A. **82**: 624 (Feb. 23) 1924.

sulphate solution T. S. (*freshly prepared*), and 3 drops of hydrogen peroxide T. S., followed by an excess of sodium hydroxide solution T. S.: a deep amethyst color forms.

Dissolve 0.05 Gm. of synephrin tartrate in 3 cc. of water; add 2 drops of silver nitrate T. S.: no precipitate appears (*absence of chlorides*).

Transfer about 0.2 Gm. of synephrin tartrate, accurately weighed, to a 500 cc. Kjeldahl flask and determine the nitrogen content according to the method described in Laboratory Methods of the U. S. Army, Charles L. Craig, 1929, p. 38: the percentage of nitrogen corresponds to not less than 5.7 nor more than 5.9 per cent.

REPORTS OF THE COUNCIL

The Council has authorized publication of the following report.

W. A. Puckner, Secretary.

NEUTROGEN ST. PELLEGRINO ANTACID LOZENGES NOT ACCEPTABLE FOR N. N. R.

Neutrogen St. Pellegrino Antacid Lozenges are stated to be "normalizing agents for the gastric functions" and to be the product of "Societa Anonima delle Terme di San Pellegrino, Milan, Italy." The following statement of composition appears on the box containing the lozenges: "'Neutrogen' S. P. Salts Extracted From The San Pellegrino Waters 0,250 Alluminium Silic. 0,250—Sugar Excipient Q.S." According to a circular received from the distributor, M. Wittmann, the solid components of the San Pellegrino mineral water consist largely of calcium sulphate with smaller amounts of magnesium and sodium combined with chloride and carbonate or bicarbonate. It would thus appear that the lozenges are claimed to consist of aluminum silicate (kaolin?) and a mixture of inorganic salts, chiefly calcium sulphate, with a relatively small amount of a carbonate or bicarbonate.

On the label of the box, the lozenges are stated to be "for excessive acidity, gastric disturbances, dyspepsia, gastric ulcers, etc." The trade package circular contains the following recommendations for the use of the lozenges: "1.—In acidity of the stomach (no matter what the cause may be). 2.—In states which may lead to gastric abrasions or ulcers and during the course of the latter. 3.—In subacute and chronic gastric catarrh. 4.—For gastric fermentation and putrefaction. 5.—For attacks of gastric cramp. 6.—In uricemic conditions and neuro-arthritic manifestations with gastric disturbances. 7.—For heavy drinkers and great smokers, for people who eat too much meat, those who are used to highly spiced cooking, and who do not know how, or cannot attenuate their habits, owing to climatic conditions, etc." The following explanation of how the lozenges exert these actions is given: "Neutralizing: because the alkaline substances are contained in very modest proportions, and such as to not cause the well known manifestations which are complained about, and due entirely to alkaline excess. Protective: on account of the bland, but efficacious action which is essentially mechanical, has been attributed to pure kaolin from olden times onwards, since the latter forms a protective film with the gastric secretions, while the gastric walls when gently stimulated, liberates its contents of food stuff and secretion and sends them on to the intestines. Normalizing: since the chief object of these lozenges is to nourish the elements whose functions are bad. Oligometallic: because the active elements are in very small quantities. Equilibrating: because the elements having an admitted biological value are contained in their proper proportions, and do not suppress each other but cooperate together. They are fractioned: because as they are prepared with small doses, they allow treatment to be followed up and controlled, and data to be gathered which will serve to increase the number of lozenges and keep the attending physicians posted, who will be able to get a better idea of the extent of the disturbances." This statement is essentially meaningless, except that it is evident that the effects are largely ascribed to the protecting action of the aluminum silicate (kaolin?). No evidence is offered to show that the long continued administration of aluminum silicate is rational or effective in the many conditions for which the lozenges are recommended, nor is evidence offered for the effectiveness of the mixture as a whole. The terms "Neutrogen" and "Antacid" used in connection with the lozenges is misleading in that the neutralizing power of the lozenges is small.

The product Neutrogen St. Pellegrino Antacid Lozenges is unacceptable for New and Nonofficial Remedies because no evidence has been presented to show that its use is rational in the conditions for which it is advertised, because the therapeutic claims are unwarranted, and because it is marketed under a misleading name and with claims that are likely to lead to its ill advised use by the laity.

Committee on Foods

The following products have been accepted as conforming to the rules of the Committee on Foods of the American Medical Association. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

VITABAR

A Dextrose Sweetened Milk-Chocolate Coated Confection of Mixed Fruits with Wheat Embryo and Added Vitamin Extracts; Contains Vitamins A, B (Complex), C, D and E in Substantial Amounts

Manufacturer.—The Vitamin Company of America, Inc., Orlando, Fla.

Description.—A dextrose sweetened milk-chocolate coated confection in bar form; the "center" contains ground sugared grapefruit peel and pineapple, ground dates and dried apricots, wheat embryo and vitamin concentrates of cod liver oil and orange or grapefruit. Vitamins A, B (complex), C, D and E are present in substantial quantities.

Manufacture.—The manufacture involves essentially three distinct operations: (1) preparation of the fruit mass, (2) preparation of the vitamin concentrates, (3) preparation of the fruit bars.

Grapefruit peel, pineapples, dates, and dried apricots are the fruit materials used.

1. Preparation of fruit material:

Fresh grapefruit peel and salted water are allowed to stand in vats for a definite period; the salt solution is separated by centrifugation. The treated peel is cooked in boiling water and the water is removed; the operation is repeated four times. The entire treatment up to this point removes the bitterness from the peel. The treated peel is centrifugated to separate it from free water, and is placed with sucrose syrup in glass lined vacuum pans. The mixture is boiled under reduced pressure of 5 inches of mercury for eight hours. The cooked peel is clear of color and permeated with sugar. Additional sucrose is added and the evaporation continued until the sugars crystallize out. The "crystallized" peel is removed and ground.

The "crystallization" of the pineapples is substantially the same as that described for the grapefruit peel, excepting it is not necessary to remove any bitter oils and other substances prior to "crystallization." The dates and apricots are processed in an autoclave under 10 pounds steam pressure.

2. Preparation of vitamin concentrates:

Vitamins A and D concentrates are prepared from vitamin tested Norwegian cod liver oil. The cod liver oil and a solution of acetic acid are agitated in a glass lined tank exhausted of air. The oil and acid solution are separated by centrifugal means and the oil is discarded. The acid oil emulsion is saponified with an alcohol solution of sodium hydroxide. The resulting soap is dried under reduced pressure, broken into small pieces and extracted with purified petroleum benzin. The benzin solution is evaporated under reduced pressure. When nearly all the benzin is removed, ground wheat embryo is mixed in. The embyro becomes impregnated with the unsaponifiable material. The drying procedure is continued and the dried mixture ground. The resulting material is biologically tested with rats for its vitamin A and D units content.

The vitamin C concentrate is prepared from tree ripened grapefruit and oranges. The washed fruit is halved and reamed. The coarse pulp and seeds are removed; the remaining material is centrifugated. The oil, wax and pulp free juice is evaporated under reduced pressure (2 inches of mercury) to a heavy syrup, which is treated with a mixture of ethyl alcohol and acetone

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SATURDAY, NOVEMBER 21, 1931

HUMAN MILK STUDIES

There is probably no other single food that has been submitted to as many chemical analyses as has cow's milk. There are published records of literally thousands of such examinations of samples from a corresponding large number of the lactating animals. From such data it has become clear that market milk, though representing the normal secretion of a physiologically functioning gland, varies widely in its composition. The variations are probably distinctly greater than those of the bloods from which in ultimate analysis the milk is derived.

In view of these facts it should not be surprising that human milk, derived as it is from a species far less "standardized" in respect to both "breed" and "feed," has been found to vary in composition between wide limits.[1] A recent writer[2] reminds us that among the conditions demonstrably effective in altering the quantity and quality of the milk secreted are the size and anatomic structure of the mammary gland, the amount and kind of food ingested, the environmental conditions, such as fresh air, sunshine and the amount and intensity of work, rest and exercise, the emotional and psychic make-up of the person, and also extraneous disturbances. But this is not all. Not only do the constituents of breast milk change during the progression of the period of lactation so that they may change in concentration from day to day, but they may also vary at different times of the day and night and during a single nursing period. Working with standardized methods of collection and analysis, Macy and her co-workers[2] at the Research Laboratories of the Children's Fund of Michigan in Detroit have observed gross chemical changes in breast milk representative of the first and last halves of nursing. These changes, we are told, were not influenced by the presence and condition of the baby at the breast. They are indicative of nutritional and clinical significance. During the progression of nursing, the fat, protein, casein-nitrogen, total solids and phosphorus tend to increase.

Such facts may not be without practical significance. Macy says that if the milk tends to become more concentrated as nursing proceeds, as has been observed clinically and reported in the literature, the strong, large infant would perhaps obtain not only a greater amount but also a more concentrated grade of milk, and, on the other hand, the underweight, weak baby might be less fortunate and obtain a milk inferior in both quantity and quality. There have been instances, we are informed, of improved growth and development of some weak and undernourished babies when they are allowed to secure the last portion of the milk in the mammary gland, the first portion having been removed by manual expression or by breast pump. The Detroit analyses disclosed individual differences in the nitrogen partition of breast milk. This permits the conjecture that, in the words of the analysts, the nature of the first and last portions of milk expressed from the glands may vary among women, owing perhaps to differing types of structure of the mammary glands and other factors incorporated in the mechanism of the secretion itself, and also to extraneous influences. All such variations may have a nutritional as well as a clinical significance. A student of nutrition[3] has remarked that the milk from an ignorant but healthy mother is more likely to meet all the essential qualifications than an artificial formula prescribed by a physician and prepared in a high class home or milk laboratory. These investigations bring the reminder that perhaps the renewed study of the chemistry of breast milk will not be without further rewards in its application to the feeding of the young.

ENZYME THERAPY

The recently reported discovery by Avery and Dubos[4] of the Rockefeller Institute of a highly specialized bacterial enzyme capable of decapsulating type 3 pneumococci both in vitro and in the animal body, and of protecting mice against a thousand lethal doses of type 3 infection, has led to renewed hope that in time bacterial enzymes may be successfully used in clinical therapy. The profession, however, must guard against premature optimism and premature exploitation of such enzymes. Many enzymes are known to be extremely toxic for laboratory animals, intravenous injection of urease, for example, leading to death in from two to three minutes with symptoms resembling those of cyanide poisoning. Clinical trial must be preceded by evidence of nontoxicity or the development of methods that will inhibit or neutralize such toxicity without destroying possible therapeutic value.

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[1] Talbot, F. B.: A Summary of Present Knowledge of Human Milk, Am. J. Dis. Child. **7:** 445 (June) 1914. Gardner, J. Addyman; and Fox, F. W.: On the Variations in the Composition of Normal Human Milk, Practitioner **114:** 153 (Feb.) 1925. Myers, B.: An Investigation on the Analysis of Human Milk, Brit. J. Child. Dis. **24:** 249 (Oct.-Dec.) 1927. Bell, M.: Studies on the Composition of Human Milk, J. Biol. Chem. **80:** 239 (Nov.) 1928.

[2] Macy, Icie G.; Nims, Betty; Brown, Minerva; and Hunscher, Helen A.: Human Milk Studies: VII. Chemical Analysis of Milk Representative of the Entire First and Last Halves of the Nursing Period, Am. J. Dis. Child. **42:** 569 (Sept.) 1931.

[3] McLester, J. S.: Nutrition and Diet in Health and Disease, ed. 2, Philadelphia, W. B. Saunders Company, 1931, p. 275.

[4] Avery, O. T., and Dubos, R.: J. Exper. Med. **54:** 73 (July) 1931.

the product exclusively for a limited period, and thereafter a nonexclusive license will permit a limited number of other firms to manufacture it—all under the nonproprietary designation of theelin; (3) that the manufacturers will submit their products to the Council on Pharmacy and Chemistry; (4) that such royalties as may accrue will be returned to the university; these funds, the committee agreed, will be for university research and for testing laboratories—none to accrue to the personal benefit of any individual; (5) that the firm will submit to the committee for approval all advertising matter which it intends to publish.

While the contract between the university and the manufacturer is given in abstract form, omitting financial details, it will be a serviceable guide to others interested. Irrespective of whether or not theelin is found valuable for medical practice, Dr. Doisy and St. Louis University are to be congratulated on taking such precautionary steps, thus placing the introduction and control of the remedy on a high plane.

Current Comment

PHYSICIANS IN THE PHILIPPINES

The estimated population of the Philippines in 1928 was 12,604,100. There are about 1,911 doctors, so that there are approximately 6,596 persons for every physician. In the United States there is one doctor for every 800 people; in England and Wales, one for every 1,490; in Germany, one for every 1,560, and in France one for every 1,690. The Philippines cannot, therefore, be said to be oversupplied with medical men. It has been argued that the number of physicians available in the United States is too great and that we are here confronted with a problem of distribution rather than supply. There has been a speedily increasing proportion of physicians to population in the Philippines; whereas in 1905 there was one physician for every 21,209 people or one to every 430 square miles of territory, there is one now to approximately every 6,596 people or one to every 59 square miles of territory. Furthermore, the two medical colleges in the Philippines are educating students who will be gradually added to the available physicians. The Santo Tomas College at Manila has 896 students in attendance. Incidentally, there are 72 women physicians among the 1,911, or approximately 3.7 per cent. Dr. A. S. Fernando,[1] secretary-treasurer of the Philippine Islands Medical Association, reports that the percentage of women physicians is increasing. A questionnaire circulated in the preparation for a Philippine medical directory elicited 799 replies and indicated that 97.4 per cent of the physicians are in active practice. Moreover, 143 letters were returned, owing to the fact that the addresses of the physicians were indefinite or unknown. Apparently somewhat primitive conditions are responsible for this failure to respond. As in the United States, there is uneven distribution of physicians in the Philippine Islands, Manila having a fairly adequate supply whereas many of the provinces suffer from a scarcity. The average age of the physicians is 38. The average age at graduation is 26 years. The specialists seem inclined toward internal medicine, obstetrics, pediatrics and surgery. Dr. Fernando has rendered a valuable service in making this material available. It reveals the medical economic problems of a community far removed from our own and yet related. It indicates, moreover, the necessity for accurate information in the evaluation of medical economic questions.

OWNERSHIP OF ROENTGENOGRAMS

The question whether the roentgenograms of a hospital patient belong to the patient or to the hospital was answered by a court for the first time, so far as is known, in *Hurley Hospital* v. *Gage*, decided on appeal, April 21, by the circuit court for the county of Genesee, Mich. The patient had been roentgenographed in the roentgenographic department of the Hurley Hospital at Flint. The usual charge for the service was included in the patient's bill. He made a payment on account but refused to pay the charge for roentgenographic service unless the roentgenograms were delivered to him. The hospital refused to deliver them and sued the patient for the balance due. In the justice's court where the suit was instituted, judgment was given against the hospital. The hospital, however, because of the principle involved, appealed to the circuit court of Genesee County. At the hearing on the appeal, no one appeared on behalf of the patient and the case was heard and judgment rendered without the submission of evidence or argument by him. In giving judgment, the court pointed out that the hospital sold and patients paid for, not the material that went into roentgenograms, but knowledge and experience. The protection of the hospital might depend largely on the proper preservation of the roentgenograms and, said the court, the films should remain with the hospital. Judgment was given against the patient for the balance due on his bill, covering the amount charged by the hospital for the roentgenograms.

WASSERMANN REACTION IN COLLEGE STUDENTS

For several years, routine Wassermann tests have been made at the University of Minnesota as a part of the periodic health examination of students in the upper classes. The tests are made by the laboratory of the state board of health, and those which are positive are repeated several times. In a two year period, 5,000 such tests were performed on students, and ten were consistently positive. Of these ten students only one knew that he had syphilis and two others suspected that they might have a venereal disease. Assuming that several positive tests on a student indicate that he has been infected with syphilis, this work shows for the group the low incidence of syphilis of 0.2 per cent. Socially and economically these students came from practically every group in the community. Nevertheless, the group is select with respect to age, intellectual

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[1] Fernando, A. S.: Physicians in the Philippines, J. Philippine Islands M. A. **11**: 319 (Aug.) 1931.

University of Nashville and at the Missouri Medical College. In 1857 he was President of the American Medical Association. He died in 1877.

IOWA

Society News.—At the seventy-fifth anniversary meeting of the Scott County Medical Society, October 6, Dr. Walter L. Bierring, Des Moines, talked on the history of the society, and Dr. Frank J. Rohner, Iowa City, on diagnosis.——Dr. George de Tarnowsky, Chicago, among others, addressed the dinner meeting of the Iowa and Illinois Central District Medical Association, Moline, Ill., October 8, on "Treatment of Low Back Pain."——The Marshall County Medical Society was addressed, October 6, by Drs. John F. Herrick and Friedrich A. Hecker, Ottumwa, on "Disorders of the Liver and Gallbladder."——Dr. Walter L. Bierring addressed the Des Moines Academy of Medicine, October 27, on "Clinical Significance of Electrocardiography."——The Hardin County Medical Society was addressed, September 29, on "The Patient—Gonorrhea—Sterility," by Dr. Henry E. Kleinberg, Des Moines.——Drs. Edward J. Harnagel and Lester D. Powell, Des Moines, addressed the Austin-Flint-Cedar Valley Medical Society in Algona, October 6, on "Traumatic Appendicitis" and "A Consideration of Gallbladder Disease," respectively.——Drs. John H. Peck and Christian B. Luginbuhl, both of Des Moines, conducted a lung and heart clinic, respectively, before the Bremer County Medical Society, October 2.——A recent meeting of the Black Hawk County Medical Society was addressed, among others, by Mr. George N. Lyman of the law enforcement division of the state department of health, Des Moines, on "Enforcement of the Medical Practice Act."——Drs. Fred M. Smith and Erwin Von Graff, Iowa City, addressed the Woodbury County Medical Society, October 14, on "Valvular Diseases of the Heart" and "Phases of Minor Surgery," respectively.——Dr. Chetwynd M. Franchere, Mason City, among others, addressed the Cerro Gordo County Medical Society, October 27, on "Infant Edema in Relation to Maternal Albuminuria"; Dr. Hale F. Shirley, Lincoln, Neb., among others, addressed the society, September 15, on "Allergical Hypothesis of Scarlet Fever."

KENTUCKY

Personal.—Dr. Howard M. Batson, Clayton, N. M., has been appointed health officer of Trigg County to succeed Dr. George M. Wells.——Dr. Martin H. Skaggs, Louisa, has resigned as health officer of Lawrence County to accept a similar position in Powell County.——Dr. Edward R. Daviess, Georgetown, head of the Scott County health department, has resigned to take a similar position in Kingwood, W. Va.

Society News.—Drs. James Farra Van Meter and Edward H. Ray, Lexington, addressed the Harlan County Medical Society, Harlan, October 24, on "Malignancy of the Face and Oral Cavity" and "Urological Diagnosis," respectively.——Dr. William L. Tyler addressed the Daviess County Medical Society, Owensboro, October 27, on "Clinical Significance of an Electrocardiogram."——Dr. John L. Jones, state epidemiologist, addressed the Grant County Medical Society, Williamstown, October 21, on scarlet fever.

Conference of Health Officers.—The annual conference for health officers conducted by the state board of health was held in two divisions this year in consequence of the prevalence of diphtheria throughout the state. Health officers of the eastern counties of the state met at Richmond, October 30-31, and those of the western counties at Madisonville, November 5-6. Control of diphtheria, malaria, pellagra, venereal disease and tuberculosis were among the subjects discussed. Among the speakers at both meetings were Drs. Arthur T. McCormack, Burrel C. Wilson, John L. Jones and Jethra Hancock of the state board of health, Louisville; Dr. George A. Wheeler, E. C. Stoy and H. A. Johnson, all of the U. S. Public Health Service.

LOUISIANA

Society News.—The Orleans Parish Medical Society was addressed, November 9, in New Orleans, by Drs. Jackson Thornwell Witherspoon on "Clinical and Social Aspects of Vulvovaginitis in Children, with the Outline of a Special Method of Treatment"; Isidore Cohn, "Disappointments in Cancer Surgery," and Frank L. Loria, "Clinical Experiences with Avertin."

Health at New Orleans.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended November 7, indicate that the highest mortality rate (18.4) appears for New Orleans, and the rate for the group of cities as a whole, 10.7. The mortality rate for New Orleans for the corresponding period last year was 16.2, and for the group of cities, 11.7. The annual rate for eighty-two cities for the forty-five weeks of 1931 was 11.9, and the same rate appears for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

MARYLAND

Clinics at University of Maryland.—A series of clinics is being offered at the University of Maryland by the division of medical extension. Dr. Lewellys F. Barker conducted the first two medical clinics, November 12-19; he will also direct the medical clinic, December 3. Dr. John C. Gittings will hold clinics on tuberculosis and cardiovascular disease, December 10 and 17, respectively.

Undulant Fever in Washington County.—Eighteen cases of undulant fever have been reported in Washington County during the last year, according to a recent announcement. Dr. William Ross Cameron, health officer of the county, is making a study of the individual cases. Most of the patients are rural residents, farmers and their families who come in contact with dairy cattle afflicted with contagious abortion. Dr. Hermon E. Hasseltine of the U. S. Public Health Service was detailed to the county to investigate the reported eighteen cases. He addressed a joint meeting of the Washington County Medical Association and the Cumberland Valley Medical Association at Hagerstown, October 16, on undulant fever.

Society News.—The Society of Hygiene of Johns Hopkins University was addressed, October 21, by William W. Cort, Ph.D., on "Effect of Diet on Hookworm Infestation in Dogs"; James H. Shrader, Ph.D., "Possible Metallic Content of Milk as Affected by Pasteurizing Plant Conditions," and Anna M. Baetjer, Sc.D., and Claude H. McDonald on "Relation of the Sodium, Potassium and Calcium Ions in the Heart Rhythmicity."——At a meeting of the West Baltimore Medical Association, October 20, Drs. Lewellys F. Barker and Emil Novak, Baltimore, discussed their research work on disorders of the endocrine glands; state medicine was also discussed.——Dr. William H. Welch, Baltimore, addressed the first of an annual series of "field nights" to be held by the University Club, Baltimore, October 23, on European medical and scientific congresses and celebrations. Dr. Lewellys F. Barker is scheduled to address one of these meetings on his trip to Russia.——The Johns Hopkins Historical Club was addressed, October 26, by Dr. Henry E. Sigerist of the Leipzig Institute, on "The Institute for the History of Medicine at the University of Leipzig," and Dr. Dean Lewis, "History of the Surgical Clinic."——At the October 28 meeting of the Baltimore County Medical Association at Sykesville, Drs. George C. Medairy, Owings Mills, spoke on "Protection of the Institution against Certain of the Contagious Diseases"; Maud M. Rees, "Psychoses Associated with Infantilism," and Edwin P. Bledsoe, encephalitis lethargica.——A symposium on measles featured the meeting of the Baltimore City Medical Society, November 6. The society held a joint meeting with the District of Columbia Medical Society, November 20, when Dr. Thomas A. Groover, Washington, D. C., spoke on "Radiographic Visualization of the Liver and Spleen by Means of Intravenously Injected Thorium Dioxide"; Dr. William D. Tewksbury, "Acute Pulmonary Abscess Treated with Artificial Pneumothorax: Results in Thirty-Nine Cases," and Dr. Leroy W. Hyde, "Color Photography in Medicine."

MASSACHUSETTS

Monthly Discussions on Heart Disease.—The New England Heart Association announces the program for its series of monthly discussions on various aspects of cardiovascular disease. The speakers, November 4, were Sir Thomas Lewis, London, and Dr. James C. White; the subject was "Raynaud's Disease." The general topics for subsequent meetings are: December 2, "Congenital Cardiovascular Disease," Drs. Arthur C. Ernstene, Howard B. Sprague and Hyman Green; January 6, "Rheumatic Heart Disease," Drs. Thomas Duckett Jones, William B. Breed and William H. Robey; February 4, "Bacterial Endocarditis," Drs. Frederick T. Lord, Cadis Phipps and Hyman Morrison; March 2, "Effect on the Heart of Diphtheria, Scarlet Fever and Tuberculosis," Drs. Edwin H. Place and John B. Hawes 2d, among others; April 6, "Cardiovascular Syphilis," Dr. Tracy B. Mallory, among others not yet assigned; May 11, "Thyrocardiac Disease and Other Endocrine Cardiovascular Relationships," Drs. Lewis M. Hurxthal, James H.

Lectures on Communicable Diseases.—Courses of lectures on communicable diseases are being offered free to the medical profession of New York City by the attending staff of the Kingston Avenue Hospital, Brooklyn. Each course consists of three clinical lectures and one conference on pathology. The lectures are given Tuesday, Thursday and Saturday of each week and the conferences on pathology the third Tuesday of each month by Dr. Maximilian A. Goldzieher. For November, December and January, the lectures are to be conducted by Drs. Kenneth G. Jennings, on diphtheria; Lee W. Thomas and Sylvan D. Lazarus, scarlet fever, and Murray B. Gordon, measles, poliomyelitis, meningitis and mixed infections. For further information, physicians are asked to communicate with Dr. Kenneth D. Nichol, medical superintendent, Kingston Avenue Hospital, Brooklyn.

Joint Meeting of Physicians and Dentists.—The joint committee of the medical and dental professions of Greater New York has arranged for a meeting, November 30. The program includes three addresses on the relationship between dentistry and diseases of the ear, nose and throat, with Dr. Richard T. Atkins, George M. Dorrance, D.D.S., and Lester R. Cahn, D.D.S., as speakers; and three on the relationship between dentistry and pediatrics, with Dr. Royal Storrs Haynes, Leroy M. S. Miner, D.D.S., and William D. Tracy, D.D.S., as speakers. At an evening session, Dr. Russell L. Cecil will speak on "Bacteriology of Dental Infections and Its Relation to Systemic Diseases"; E. H. Hatton, D.D.S., "Oral Diagnosis and Its Relation to Diseases in Other Parts of the Body," and Alfred Walker, D.D.S., "The Triangle in a Modern Health Problem—the Physician, the Dentist and the Patient."

Racketeers Impersonate Health Inspectors.—The department of health recently issued a warning to proprietors of restaurants and lunch rooms against persons representing themselves as official inspectors. These "easy money racketeers" visit restaurants and note the expiration date of the permits. If a permit has expired, the alleged representative of the health department offers to have it renewed for the payment of a specified sum. If the proprietor acquiesces, he not only loses the money paid to the racketeer but runs the risk of prosecution for failure to display a valid permit and eventually has to pay the regular fee to the health department. The health commissioner reminded these proprietors that authorized representatives of the health department are not empowered to collect money and are not permitted to offer to have permits renewed or to have any other violation overlooked. He further advised all restaurateurs to call the police when any alleged representative of the health department offered to perform any service for pay.

OHIO

Dr. Adrian Delivers Hanna Lecture.—Dr. Edgar Douglas Adrian, Foulerton research professor of the Royal Society, Cambridge University, England, delivered the twenty-eighth Hanna Lecture at the Institute of Pathology, Cleveland, November 10, on "The Nervous Mechanism of Sensation and Movement."

Personal.—Dr. William M. Doughty was installed as president of the Cincinnati Academy of Medicine, September 28. ——Dr. Charles A. Neal, Columbus, former state health commissioner, has been appointed superintendent of the Hamilton County Home, Hartwell.——Dr. George P. Tyler, Sr., was recently elected mayor of Manchester.

Carbon Monoxide Poisoning.—Deaths from carbon monoxide poisoning associated with gas-heating appliances showed a decrease in Ohio during the year July 1, 1930, to June 30, 1931, the *Ohio Health News* reports, but deaths from breathing the exhaust fumes of automobiles increased. The records showed twenty-nine deaths associated with heating appliances, of which heaters in bedrooms and water heaters were the leading offenders. Two cases were suicides. In the previous year there were fifty-two deaths from this cause. Out of a total of ninety-eight automobile exhaust mishaps in the year reported, there were forty-one deaths, five of which were apparently suicides. This number compares with thirty-five deaths out of eighty-four cases of poisoning in the preceding year.

Society News.—Recent speakers before the Cincinnati Academy of Medicine have been Drs. Edmund Prince Fowler, New York, October 6, on the prevention and cure of deafness; Joseph Treloar Wearn, Cleveland, "Relationship of Thebesian Circulation to Heart Disease," and Edward D. King, Cincinnati, "Plastic Surgery of the Nose." Dr. William F. Braasch, Rochester, Minn., will address a joint meeting of the academy and the Cincinnati Urological Society, November 23, on the polycystic kidney.——Dr. William Ravine addressed the Cincinnati Obstetrical Society, November 12, on "Puerperal Psychosis."——Drs. John D. Fouts, Dayton, and Berton M. Hogle, Troy, addressed the Miami County Medical Society, Piqua, October 9, on "Endoscopic Work as an Aid to Diagnosis in Upper Thoracic Pathology" and "Skeletal Traction in Fractures," respectively.——Dr. Clyde L. Cummer, Cleveland, addressed the Huron County Medical Society, Norwalk, October 9, on treatment and prevention of ringworm infection.——Dr. George C. Fedrow, Zanesville, addressed the Muskingum County Academy of Medicine, October 7, on chorea and its treatment.——The Columbus Academy of Medicine held a clinicopathologic conference on bacterial endocarditis, October 12, with Drs. Lear H. Van Buskirk, Solomon A. Hatfield and Ernest Scott as speakers.——Drs. Floyd C. Hendrickson, Canton, and William E. Lower, Cleveland, among others, addressed the Union Medical Association (the sixth councilor district), Wooster, October 14, on "Surgery of Infections of the Lower Urinary Tract" and "Present Status of the Prostate Gland," respectively.——Drs. Hugh Wellmeier and Wallace B. Taggart addressed the Montgomery County Medical Society, Dayton, November 6, on "Congenital Syphilis" and "Deficiency Diseases in Infancy," respectively.——At a meeting of the Toledo Academy of Medicine, November 6, Drs. Karl D. Figley and Thomas H. Brown spoke on "Food Allergy" and "Medicolegal Aspects of Industrial Medicine," respectively.——Dr. Luther C. Peter, Philadelphia, addressed the Cleveland Ophthalmological Club, November 9, on "Monocular Esotropia."

OREGON

Society News.—County medical societies have recently been organized in Union and Umatilla counties.——Dr. Banner R. Brooke, Portland, discussed proctology and Dr. Harvey J. Clements, Salem, the electrocardiograph, at a meeting of the Marion-Polk-Yamhill Counties Medical Society, in September. ——Drs. DeWitt C. Burkes and Henry H. Dixon addressed the Portland City and County Medical Society, November 4, on "Scope of Psychiatry" and "Relations of Psychiatry to General Disorders," respectively.

State Medical Election.—At the annual meeting of the Oregon State Medical Society in Eugene, October 22-24, Dr. Albert E. Mackay, Portland, was made president-elect, and Dr. Edward L. Zimmerman, Eugene, was installed as president. Other officers include Drs. Harvey J. Clements, Salem, William T. Johnson, Corvallis, and Frank E. Butler, Portland, as vice presidents; Albert W. Holman, Portland, secretary, and Karl H. Martzloff, Portland, treasurer. The executive secretary of the society is Mr. Clyde C. Foley, Portland.

PENNSYLVANIA

Society News.—Drs. Paul Titus and Robert M. Entwisle addressed the Pittsburgh Academy of Medicine, November 10, on "Sterility: Its Cause and Treatment" and "Diverticulosis of the Sigmoid," respectively.——The Lycoming County Medical Society held its semiannual clinic meeting, November 13, in connection with the northeastern chapter of the Jefferson Alumni Association at Williamsport. Drs. Thomas McCrae, Thomas A. Shallow and Willis F. Manges, Philadelphia, conducted clinics in the morning and made addresses in the afternoon, speaking on "Troubles of the Colon," "Surgery of the Sympathetic Nervous System" and "Primary Carcinoma of the Lungs and Its Treatment," respectively.——Drs. Melvin E. Cowen and Thomas H. A. Stites, Cresson, addressed the Cambria County Medical Society, Johnstown, November 12, on diagnosis and treatment of tuberculosis in children and in adults, respectively.

Philadelphia

Anniversary of Discovery of Cause of Syphilis.—The twenty-fifth anniversary of Schaudinn's discovery of Spirochaeta pallida was marked by a special meeting of the College of Physicians of Philadelphia, November 9. During the day there was an historical exhibit of incunabula, rare books, prints, portraits and medals relating to the history of syphilis and a technical exhibit of equipment used in the modern treatment of the disease, with demonstrations. At an evening meeting, speakers were Drs. Jay Frank Schamberg, on "Is Syphilis America's Gift to the World?"; John H. Stokes, "Schaudinn," and Henry E. Sigerist, Leipzig, Germany, "Fracastoro and His Poem."

Tuberculosis Conference.—Ten years of progress in tuberculosis control were reviewed at a conference, November 10, arranged by the Philadelphia Department of Health, Philadelphia County Medical Society, Philadelphia Association of Tuberculosis Clinics and Philadelphia Health Council and Tuberculosis Committee. Drs. Charles J. Hatfield and Robert G. Torrey, among others, discussed changes in the attack on the disease in the last decade. Special examinations of school children were described by Drs. Hubert W. Hetherington and

Albert Graeme Mitchell and Merlin L. Cooper, Cincinnati, "Treatment of Asthma by Bacterial Sensitization"; Ralph G. Carothers, Cincinnati, treatment of osteomyelitis with maggots, and Glenn E. Cullen, Ph.D., Cincinnati, diagnosis and treatment of acidosis. The 1932 meeting will be held in Kansas City.

Society News.—The joint meeting of the American Association of Railway Surgeons and the Surgical Association of the Illinois Central System, which was to have been held in St. Louis, November 5-7, was postponed to 1932.——Dr. William J. Mayo, Rochester, Minn., was chosen president-elect of the Interstate Postgraduate Medical Association at its recent meeting in Milwaukee; Dr. Arthur Dean Bevan, Chicago, was installed as president.——The Canadian National Research Council has announced that the Fifth Pacific Science Congress, which was to have been held in Victoria and Vancouver, B. C., May 23-June 4, 1932, has been postponed.——The sixteenth annual session of the American College of Physicians will be held in San Francisco, April 4-8, 1932.——The twelfth annual meeting of the Association for Research in Nervous and Mental Disease will be held in New York, December 28-29.

News of Epidemics.—Dr. John L. Jones, state epidemiologist, recently reported that 1,080 cases of diphtheria had been reported to the Kentucky state health department between August 1 and October 24. During the corresponding period in 1930, only 131 cases were reported. These figures are from only 70 of the 120 counties in the state and probably represent less than half the actual number of cases, according to Dr. Jones.——Nine cases of smallpox occurred in a public school in Moline, Ill. The school was closed one day, October 27, for disinfection and health officials ordered that every student be vaccinated before November 1.——Schools were recently closed in Monroe, Ind., and Homer, Ohio, because of scarlet fever. Ten cases occurred in the Monroe school and four in Homer.——Seven cases of typhoid were reported to the health department of Henry County, Ky., between October 24 and November 6. Ten cases were reported in Hopkins County, November 3.

Committee to Study Prison Diets.—At the meeting of the medical section of the American Prison Association, October 19-21, during the association's sixty-first annual congress in Baltimore, a committee was appointed to study prison diets in various institutions throughout the country. The committee consists of Dr. Walter L. Treadway, assistant surgeon general, U. S. Public Health Service, chairman, Dr. John C. Lindsay of the Connecticut State Reformatory, Cheshire, and Dr. George H. Preston, commissioner of mental hygiene for Maryland. A report with standard recommendations will be submitted at the next annual session, which will be held in Indianapolis. The medical section also plans to devote a session of the next meeting toward its effort to raise the standard and efficiency of the medical care of the prison population. Officers of the section elected at the recent meeting are Dr. Amos T. Baker of Sing Sing Prison, Westchester County, N. Y., president; Dr. Treadway, vice president, and Dr. James L. McCartney of the Elmira Reformatory, New York, formerly director of the bureau of mental hygiene of Connecticut, secretary.

Radiological Society of North America.—The seventeenth annual meeting of the Radiological Society of North America will be held in St. Louis, November 30-December 4, with Dr. Bundy Allen, Tampa, Fla., as president. Many of the sessions will be organized as symposiums. Among speakers will be Drs. James Ewing, New York, "Pathological Study of Myeloma or Ewing Tumor"; Henry K. Pancoast and Bernard J. Alpers, Philadelphia, "Effect of Irradiation on Normal and Neoplastic Brain Tissues"; Leon T. LeWald, New York, "Roentgenological Examination of the Digestive Tract of Infants and Children"; Joseph Colt Bloodgood, Baltimore, "Working Rule in the Diagnosis and Treatment of a Lesion of Bone"; Byrl R. Kirklin, Rochester, Minn., "Neoplastic Diseases of the Stomach"; Evarts A. Graham, St. Louis, "Diagnosis of Diseases and Abnormalities of the Liver and Gallbladder"; Ernst A. Pohle, Madison, Wis., "Effect of Roentgen Rays on Healing of Wounds"; George H. Semken, New York, "Radical Surgery in Treatment of Cancer"; Vilray P. Blair, St. Louis, "Surgical Repair of Radium and X-Ray Keratoses"; Manuel F. Madrazo, Mexico City, "Treatment of Thyrotoxicosis by Means of Roentgenotherapy"; Dallas B. Phemister, Chicago, "Pathology of Certain Types of Bone Tumors"; George E. Pfahler, Philadelphia, "Results of X-Ray Treatment on Bone Malignancy"; Harrison S. Martland, Newark, N. J., "Bone Sarcoma by the Injection of Radioactive Substances"; Otto Glasser, Ph.D., Cleveland, "Evolution of the Roentgen Rays" and Gioacchino Failla, Sc.D., New York, "Protection from Gamma Rays and 900 K. V. X-Rays." Headquarters will be at the New Jefferson Hotel.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 31, 1931.

Dietary Control of Dental Decay

The experimental work of Mrs. May Mellanby on the effect of diet on the teeth is well known and has been summarized in previous letters (The Journal, March 8, 1930, p. 728; April 13, 1931, p. 1324). Since 1929 she has been making reports to the Medical Research Council on the influence of nutrition on the development of the teeth and jaws in dogs and other animals, and on the experimental production of dental and periodontal disease. A report is now being prepared on the influence of diet on human teeth and their resistance to disease. In the preface to an interim report, the council declares that the body of new knowledge so presented is of immeasurable value for the promotion of public health and for the lessening of pain and facial disfigurement. The trial of controlling dental decay in children's teeth by a slight modification in the quality of the diet has already given results confirming those obtained both in animals and in man. The results now announced relate only to children's teeth already formed at the beginning of the trial. These are so striking that the dental committee of the council thought they justified an immediate interim report. Another year or two must pass before the results of modified diet can be shown in the teeth that have been in the course of development since the beginning of the trial.

Mrs. Mellanby has already shown that the teeth of growing dogs can to a large extent be controlled by dietetic measures, that teeth of good structure can invariably be secured by an adequate supply of fat-soluble vitamins, especially vitamin D, and that, whatever the dental structure, the amount and character of the secondary dentin formed in response to an outside stimulus, such as attrition, depends largely on the supply of these vitamins. She has also shown that caries is especially predominant in deciduous human teeth of defective calcification, as indicated macroscopically by roughened surface and microscopically by interglobular spaces and changes in the enamel; and that when caries occurs in well calcified teeth, the secondary dentin is usually defective both in structure and in amount. These observations suggest that it is possible to produce teeth of good structure by dietetic measures in man and that such teeth will be relatively immune to caries. They also suggest that similar measures may increase the resistance to caries in teeth already formed. The last suggestion received support from investigations at a hospital for surgical tuberculosis in Sheffield. In the teeth of children whose diet contained an additional amount of fat-soluble vitamins, mainly vitamin D, caries developed to a much smaller extent than in the teeth on the standard hospital dietary, and an ample supply of these vitamins promoted arrest of active caries. The Medical Research Council therefore decided that the time had come for an investigation on a large scale. This was done at three residential institutions in Birmingham accommodating under uniform conditions 835 children, aged from 2½ to 16 years. The standard dietary, judged by all ordinary standards, was thoroughly satisfactory. It was generous, but not particularly rich in fat-soluble vitamins. The method was to add a definite item to the diet of all the children in each institution: in one, a ration of cod liver oil (containing vitamins A and D); in the second, a corresponding ration of treacle; in the third, a similar amount of olive oil. Both the latter items contain important food elements without the fat-soluble vitamins. Every child was submitted at intervals of six months to careful dental inspection by a dental surgeon. After a period of two years, it was found that the progress of caries in the permanent teeth operative traumatism, excision of superfluous mucous membrane, preoperative gastric infection.

TREATMENT OF PEPTIC ULCERS

The paper of Professor Gosset dealt with the treatment of peptic ulcers. He emphasized that the medical treatment of postoperative ulcers is more uncertain and deceptive than that of primary ulcers of the stomach and duodenum. It must not be prolonged, because of the tendency of these ulcers to perforate. Roentgenotherapy, as advocated in Germany, has been used in France by Ledoux-Lebard. It brings, in 70 per cent of the cases, marked relief, and sometimes disappearance of the pain symptoms, also a diminution in the volume of the inflammatory masses. The surgical treatment, which the author particularly favors, was explained by him with many operative details, and with these conclusions: the criteria for the treatment of peptic ulcer, which should always be early, are dominated by the recurring tendency of the ulcer, a tendency that is more marked if the patient is young and if the original ulcer was a duodenal ulcer. The two chief forms of intervention, anatomic restoration and extensive gastrectomy, are opposed to each other. Between them lies partial gastrectomy with gastroduodenal reunion. The mere suppression of the gastro-enterostomy is a poor intervention, as it brings about a recrudescence of the duodenal ulcer. It is necessary to supplement the gastro-enterostomy by a duodenectomy, with excision of the inner two thirds of the sphincter. The future will show better just what the value of this logical intervention is. If this anatomic restoration cannot be accomplished, there remain the following two resources: the creation of a new and better gastro-enterostomy, or the performance of a wide resection. A new gastro-enterostomy should be the last resort in these patients who have shown their predisposition to ulcers. As an isolated measure, a new gastro-enterostomy can be advised only in very weak and aged patients. Wide resection ought to ward off definitively the menace of peptic ulcer. To accomplish that, resection will comprise two thirds of the stomach, including the gastro-enterostomy and the peptic ulcer. The best reunion is in that case the Reichel-Polya anastomosis as modified by Finsterer, which necessitates the use of a distal jejunal loop for the suture of the jejunum. A Y-shaped anastomosis may be necessary; but this should be employed only exceptionally. The gastric resection may be confined to the pyloric portion (including the pylorus) provided in that case the Péan operation is performed. In this manner fairly good results may be secured; but this operation is not always possible. Gosset prefers extensive gastrectomy. This opinion is based on the good results of wide resection and the low percentage of recurrences. In the particular case of peptic ulcer following gastro-enterostomy with exclusion, one may seek to suppress the gastro-enterostomy and to reestablish the gastroduodenal continuity by means of a direct anastomosis. In very weak persons and in inoperable cases, jejunostomy may render good service. Exclusive jejunal alimentation may bring improvement in the presence of large ulcers and may facilitate later radical operation. In the case of perforated peptic ulcer, the indications depend on how early the intervention is resorted to. As a rule, an endeavor should be made to apply the general principles of surgery of peptic ulcer: excision of the ulcer, better drainage of the stomach, anatomic restoration; but often intervention should be confined to closing the perforation. The operation can be done in two stages: first, mere closing of the perforation, and, a few weeks later, anatomic restoration or prophylactic resection. The least harmful operation is the liberation of fistulized organs, with anatomic restoration whenever possible. Gastrectomy at the first onset is a grave intervention, involving a high mortality in case of simultaneous resection of the colon. Many took part in the general discussion that followed the presentation of these two papers.

PNEUMOCOCCAL PERITONITIS

The introductory paper on the second topic on the program, "Pneumococcal Peritonitis," a rather brief presentation, was offered by Bréchot and Nové-Josserand of Lyons. They brought out that the pneumococcus may be found in cases of peritonitis of extremely diverse origin, but that in such cases it is merely an associated organism. In those cases it figures as an ordinary control; or it may have prepared the way for other micro-organisms—but it is not preponderant. True pneumococcal peritonitis may appear isolated or associated with other manifestations of the same organism in the patient. The former condition is more frequent (60 per cent or more in children aged 3 to 12). In older children and in adults it is the pleuropulmonary disorders that are most often associated with pneumococcal peritonitis. Pneumonia is doubtless the most frequent cause. Pleural or pulmonary localization of the pneumococcus may precede the pneumococcal peritonitis or may develop simultaneously or may follow it, which is a very artificial distinction; for, most commonly, the pneumonia only apparently precedes the peritonitis. They begin at the same time; but the signs of the pneumococcal peritonitis are masked at the onset by the symptoms of pneumonia. Bréchot and Nové-Josserand pointed out the importance that Italian and Anglo-Saxon authors assign to the previous existence of sore throat, as a port of entry of the infection. Fiske, in six cases out of eight, observed pertussis. Often traumatism plays a part. Study of the symptomatology revealed the possibility of the most varied symptoms, the onset being sudden or preceded for several weeks by symptoms difficult to discover. The diagnosis is often difficult, especially when associated with appendicitis. There are incontestably certain mild forms that clear up spontaneously, which fact many surgeons consider justifies a waiting policy. But the tendency to operate early in every case of peritonitis appears at present dominant, especially among the Italian and Anglo-Saxon surgeons. Medical forms of treatment (vaccines, colloidal metals) are still a subject of controversy. The few speakers who discussed the matter brought no more clarity than the essayists.

IMMEDIATE SURGICAL TREATMENT OF OPEN FRACTURES

G. Roux of Montpellier and J. Senèque of Paris presented a comprehensive paper on the immediate surgical treatment of open fractures. They distinguish five different degrees of gravity. In the first two, which constitute the great majority, with a minimal skin lesion, the bone not splintered, or with only a slight displacement, not located in the uppermost third of the leg, recovery is a simple matter. Osteosynthesis is not indicated, although the ends of the bone must sometimes be kept in place by a catgut ligature. The skin will be sutured almost completely with slight drainage, or with a fenestrated dressing if the wound is small and not infected. A plaster cast is used to immobilize the limb. The third degree presupposes a large wound, with irreparable loss of substance, disturbance of the muscular beds without arterial lesion, and comminutive bone fracture or fracture of the uppermost third. The use of a metallic ligature may then be necessary rather than osteosynthesis by means of plates. The plaster cast or the splint will be used, depending on the case. The fourth degree is characterized by extensive detachments, lesion of the tibial artery and risks of further infection. The authors reject in such cases all forms of osteosynthesis, all application of pressure to the bone direct or indirect, and advocate continued extension with the aid of a stirrup or the Kirschner apparatus. Recovery will require several months, and the result will never be perfect. The fifth degree is represented by the crushing of the leg, and amputation is the only resource. First the state of shock must be treated, if it exists. In a general way, the authors regard osteosynthesis and the use of plates as commonly useless. In any event, osteosynthesis, if it fails, involves risks threatening the later function virtuoso, an 11 year old violinist (boy), a 14 year old violinist (girl), a 13 year old bandmaster, a 10 year old artist (drawings), and a 6 year old geographer.

A fact especially striking is that all the children examined took great delight in displaying their accomplishments. They never suffer from stage fright and want to perform as often as possible. Child prodigies are aware of the fact that they must provide for themselves and for their parents, that they should feel a sense of responsibility for the quality of their performance, and that they must strive for perfection in their art. This sense of responsibility explains the occasional over-serious manner assumed by child prodigies, which is in marked contrast to their usual childlike demeanor; for they are fond of playthings and of playmates if opportunity is afforded them. Child prodigies are model children as to behavior. They are strongly attached to their parents and follow their instructions implicity. It is usually assumed that child prodigies are tormented by their parents, overzealous to extract from them the last ounce of profit. That appears to be the exception, for the parents know, or soon learn, that more can be accomplished through love than through application of severe measures. In the older children, the character is influenced by the intentionally emphasized childlikeness in such a manner that they often take on a certain manliness. The intelligence test, with a single exception, revealed a level that was far above the average. It showed that the children were by no means one-sided in their mental development. For example, the girl violinist showed considerable talent for drawing and possessed good technical understanding. The pianist possessed noteworthy talent for mathematics, and the danseuse marked ability in logical debate. In many fields the children showed ability in the solution of special tasks, which exceeded anything that experimental psychology had ever recorded. The chess prodigy committed in four minutes forty dates to memory, and the 9 year old pianist answered better the general searching questions intended for gifted children aged 12 to 14 than did several hundred such children. On the other hand, some remarkable and unexpected deficiencies were discovered. The young violinist was unable to bend a piece of wire into the simplest geometric shape, and the 9 year old piano virtuoso could not draw as well as a 4 year old child. The 8 year old chess prodigy who played simultaneously and won twenty games of chess with twenty of the best players of the Berlin chess club has no conception of the realities of the outside world, does not know the day of the month, and cannot distinguish the simplest coins. Most of the children were physically well developed. The authoress, who has been observing some of the child prodigies for more than ten years, found that a considerable number of these children are no longer developing in the direction that was so prominent in their childhood. For example, the chess prodigy is studying theology in America and is said to be a promising student. Probably this deflection of talents to another field is the chief basis for the assumption that child prodigies "peter out" in later life, a view that is expressed in the clever though somewhat caustic remark of Franz Liszt: "Child prodigies have their future in the past."

Hereditary Effects of Roentgen Rays

Owing to the increased number of indications for the use of radiation therapy, the question of the hereditary effects of roentgen rays on offspring has awakened interest. Two societies of recognized importance, the Deutsche Gesellschaft für Vererbungswissenschaft and the Deutsche Gesellschaft für Rassenhygiene, have adopted a definite attitude toward the question. They take the view that the possible damage to offspring by roentgen irradiation has been proved by a large number of exactly controlled experiments. Emphasis is laid on the danger to posterity through roentgen irradiation of the gonads, and especially from so-called temporary sterilization. Injuries to posterity are involved that possibly may not appear until after several generations.

NETHERLANDS

(From Our Regular Correspondent)

Oct. 2, 1931.

Inquiry on Restrictions on Dispensing Alcoholic Beverages

The Netherlands minister of labor, commerce and industry, at the request of the national committee for combating alcoholism, made an inquiry in all the communes of the country with regard to the results of the restrictions imposed on the dispensing of alcoholic beverages, in accordance with the provisions of the legislation at present in force. The results of this inquiry show for each commune: (1) the days and hours for which the restrictions were imposed; (2) the results of the restrictions; (3) as to whether the restrictions have been abolished, and (4) if so, why? The restrictions were established by the communal authorities only for certain specified days: holidays, fairs, market days, and the like, either for the whole day or for certain hours. The extent of the restrictions varied also according to the localities. On the whole, the effects of the restrictions were found to be favorable. The effects were particularly good when, for example, the restrictions applied to election days, drawings for the conscription, or other similar events. Large centers of population especially have found general advantages in the restrictions. Some communes reported the results as unfavorable. A few communes have abolished the restrictions. The reasons given for the failure and abolition of the restrictions in certain communes are as follows: The means of enforcing the restrictions were inadequate; the restrictions gave rise to clandestine dispensing (bootlegging); the restrictions were not in force at the same time in adjoining communes, which made the securing of beverages an easy matter.

Malaria in Batavia

In a public health bulletin of the Dutch East Indies, Mr. Van Breemen publishes the results of studies carried on since 1923 on malaria, particularly with reference to the prevalence of anopheles and the effects of preventive measures at Andjong-Priok. Following petrolization, the hatching places of Anopheles ludlowi and of Anopheles rossi Giles have almost entirely disappeared from the territory surrounding the port. But the work carried out on the fish-ponds to the east of Kampong Kodja for a distance of about 1,300 meters has not prevented absolutely further invasion of this region, particularly by Anopheles ludlowi, which comes from the ponds farther on. This invasion reaches its height during the season of the east monsoon; but it must be admitted that likewise during the season of the west monsoon the Anopheles density is under the influence of the ponds located more than a kilometer to the east. Nevertheless, the mortality has declined at Kodja, and also the splenic index in children. The author states that the best method of removing the menace of fish-ponds is to place their management and exploitation under the control of the public health service with full authority to act. By including petrolization, and, if need be, the drainage or filling in of less important collections of stagnant water to the south of the area of the fish-ponds, a complete success may be achieved.

Instruction in Therapeutics

J. De Groot discusses in the journal *Geneeskundige Gids, July 31, 1931*, the need of extending the opportunities for individual instruction in therapeutics. He holds that instruction in therapeutics should be given by a university professor, assisted by instructors. The professor ought to be able to treat pharmacotherapy and climatotherapy, and to give an outline of therapeutics in general and of the relations existing between the various branches of therapeutics. The instructors should each be able to discuss certain subdivisions and to study them in a practical manner with the students. De Groot assumes that

E. T. Arthur Simard, Quebec, Que., Canada; Laval University Faculty of Medicine, Quebec, 1890; professor of pathology and clinical surgery at his alma mater; president of the Medical Council of Canada; aged 63; died, September 3, in a local hospital.

William Louis Grimes, San Francisco; Missouri Medical College, St. Louis, 1893; also a pharmacist; formerly on the staff of the Illinois Hospital for the Insane, Jacksonville; aged 76; died, October 14, in Oakland, Calif., of carcinoma of the duodenum.

Clara Shetter Keiser, Reading, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1885; member of the Medical Society of the State of Pennsylvania; aged 68; died, October 6, of an injury received in an automobile accident.

James S. Rowe, Jamestown, Ky.; Louisville Medical College, 1893; member of the Kentucky State Medical Association; for fifteen years county health officer; aged 62; died, October 12, of cerebral hemorrhage and chronic nephritis.

Robert Allan Pyne, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1878; sheriff of Toronto; served during the World War; formerly member and chairman of the board of education; aged 77; died suddenly, June 18.

George Edward Josephs, Pembroke, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1881; formerly county coroner and member of the board of education; on the staff of the Cottage Hospital; aged 73; died, May 20.

Paul K. Gaston ⊕ Pratt, Kan.; American Medical Missionary College, Chicago, 1903; on the staff of the Ninnescah Hospital; aged 59; was killed, November 13, when the automobile in which he was driving was struck by a train.

Joseph O. Eddy, Friendly, W. Va. (licensed, West Virginia, 1903); member of the West Virginia State Medical Association; aged 49; died, October 27, of chronic endocarditis, aortic insufficiency and mitral insufficiency.

Rob Roy McCully, Cincinnati; Columbia University College of Physicians and Surgeons, New York, 1901; connected with the U. S. Veterans' Bureau; aged 54; was found dead in bed, October 25, of cerebral hemorrhage.

Milton Chauncey Wright, Mount Vision, N. Y.; Medical Department of the University of the City of New York, 1893; aged 70; died, June 25, in Cooperstown, of bronchopneumonia, acute bronchitis and cardiac insufficiency.

Raymond Edgar Trezise, Brooklyn; Long Island College Hospital, Brooklyn, 1920; member of the Medical Society of the State of New York; on the staff of the Bay Ridge Sanitarium; aged 38; died, October 15.

Walter Edson Steffy, Duquesne, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1894; aged 61; died, August 9, in the McKeesport (Pa.) Hospital, of cardiorenal disease and acute suppurative appendicitis.

William Herrick Newman, Long Beach, Calif.; Rush Medical College, Chicago, 1893; member of the Associated Anesthetists of the United States and Canada; aged 65; died, August 20, of bronchopneumonia.

John Arthur Miller, Detroit; University of Michigan Medical School, Ann Arbor, 1900; member of the Michigan State Medical Society; aged 60; was found dead, October 16, with a self-inflicted bullet wound.

Edwin Gibbons Moore, Elm City, N. C.; University of Maryland School of Medicine, Baltimore, 1883; member of the Medical Society of the State of North Carolina; aged 69; died, October 6, of hemiplegia.

William Wallace MacGregor, Laredo, Texas; Albany Medical College, 1873; College of Physicians and Surgeons in the City of New York, 1877; aged 80; died, October 13, of hypostatic pneumonia.

John McLernon, Philadelphia; Jefferson Medical College of Philadelphia, 1892; member of the Medical Society of the State of Pennsylvania; aged 64; was found dead, November 1, of heart disease.

David R. Landsborough, Daggett, Mich.; Trinity Medical College, Toronto, Ont., Canada, 1901; member of the Michigan State Medical Society; aged 59; died, October 28, of cerebral hemorrhage.

Louis Paul Rossier, Garberville, Calif.; University of Vermont College of Medicine, Burlington, 1878; aged 76; died, August 20, of injuries received when he was struck by an automobile.

Robert Hamilton Thornton, Newport, Ky.; Medical College of Ohio, Cincinnati, 1868; Bellevue Hospital Medical College, New York, 1872; aged 84; died, October 11, of pulmonary congestion.

Thomas Bennett Green, New Westminster, B. C., Canada; McGill University Faculty of Medicine, Montreal, Que., 1906; served during the World War; aged 57; died, June 5, of heart disease.

Fred Dunham Pratz ⊕ Moweaqua, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; aged 61; died, October 23, of heart disease.

George Horton Perrin ⊕ Menomonee Falls, Wis.; Keokuk (Iowa) Medical College, 1892; past president of the Waukesha County Medical Society; aged 67; died, October 15, of acute uremia.

William McLean Rowat, Athelstan, Que., Canada; McGill University Faculty of Medicine, Montreal, 1886; for many years coroner of the district of Beauharnois; aged 71; died, June 18.

George McClellan Jones, Long Beach, Calif.; State University of Iowa College of Medicine, Iowa City, 1886; aged 69; died, August 19, of injuries received in an automobile accident.

Frank E. Seal, Brookville, Ind.; Eclectic Medical Institute, Cincinnati, 1882; member of the Indiana State Medical Association; aged 72; died suddenly, October 20, of heart disease.

Walter Albert Smith ⊕ Modesto, Calif.; Keokuk Medical College, College of Physicians and Surgeons, 1908; aged 54; died, October 19, of angina pectoris and acute myocarditis.

David Trumbull Marshall, Hollis, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1896; aged 65; died, October 9, of a self-inflicted bullet wound.

Clarence James Stewart, Montreal, Que., Canada; McGill University Faculty of Medicine, 1918; on the staff of the Montreal General Hospital; aged 39; died, September 14.

Robert Andrew Lowry, Brooksville, Fla.; University of Louisville (Ky.) School of Medicine, 1875; aged 77; died suddenly, October 13, of acute cardiac dilatation.

Harry Arthur Donovan ⊕ East Tallassee, Ala.; University of Louisville (Ky.) School of Medicine, 1907; aged 50; died, October 20, of acute angina pectoris.

Abraham Smith Warder, Jr., Grafton, W. Va.; University of Maryland School of Medicine, Baltimore, 1885; aged 70; died, October 23, of cerebral hemorrhage.

William A. Fahl, Mount Blanchard, Ohio; Eclectic Medical Institute, Cincinnati, 1885; bank president; aged 71; died, October 26, of carcinoma of the face.

Edward L. Parmeter ⊕ Albion, Mich.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1876; aged 79; died, October 18, of cerebral hemorrhage.

Henry Roman Gozdzicki, Ambridge, Pa.; Jefferson Medical College of Philadelphia, 1919; aged 40; died, June 27, in Wilmington, Del., of pneumonia.

Maurice Eugene Roasberry ⊕ New London, Ohio; Cleveland Homeopathic Medical College, 1904; aged 51; died, October 13, of cerebral hemorrhage.

Newton James Rice, Pomona, Calif.; Rush Medical College, Chicago, 1887; aged 71; died, August 14, of coronary thrombosis and arteriosclerosis.

Harry P. Pomerene ⊕ Canton, Ohio; Jefferson Medical College of Philadelphia, 1890; aged 65; was found dead in bed, October 26, of heart disease.

Daniel Allan Morrison, Louisburg, N. S., Canada; College of Physicians and Surgeons, Baltimore, 1893; died suddenly, August 29.

John T. Ryan ⊕ St. Clair, Pa.; Jefferson Medical College of Philadelphia, 1905; aged 52; died, October 6, of carcinoma of the stomach.

Cassius W. Bailey, Pleasant Plain, Iowa; Keokuk Medical College, 1897; aged 60; died, October 10, of cerebral hemorrhage.

Ezra Johnston Watts, Toronto, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1886; aged 67; died, August 21.

William Lyman Hume, Leeds Village, Que., Canada; McGill University Faculty of Medicine, Montreal, 1875; died, June 28.

Thomas Harry Ashby, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1878; aged 74; died, September 7.

Western Cass Loomis, Wichita, Kan.; University of Illinois College of Medicine, Chicago, 1910; aged 51; died, October 9.

Joseph Henry Dixon, Holyoke, Mass.; Baltimore Medical College, 1894; aged 59; died, June 2, of heart disease.

again from Fantus: "They are contraindicated in chronic atonic constipation, as they not only do not antagonize the underlying pathologic condition, but actually aggravate it by lessening the need for peristaltic activity, as liquid contents are more easily propelled than solid material."

Correspondence

EARLY KNOWLEDGE OF VITAMINS

To the Editor:—It is a well known fact that popular intuition often antedates, by many years, scientific discovery and scientific explanation. Before vitamins were dreamed of, experience had shown the value of lime juice in scurvy and of cod liver oil in rickets.

In some studies on the Florentine guilds, I found that five centuries before Eyckmann demonstrated the significance of accessory food factors the people of Florence had for themselves discovered the value of vegetables in the diet. The humble cabbage was greatly extolled, as were in turn all the vegetable treasures of the garden and the field, as a panacea for all the aches and pains of poor humanity.

But even more indicative of the penetrating power of the common instinct is the following: "It [cabbage] was cooked, and even the water in which it was prepared was deemed a health-giving beverage." This may be looked on as the precursor of the present-day passion for tomato juice and sauerkraut cocktails.

The context and the phraseology used by the writer whom I have quoted, Edgcumbe Staley, show that Staley, who wrote in 1906, thought such practice a foolish superstition. The world at large for centuries seemed to be of the same opinion and, as many housewives do in our own time, cast away with the water in which the vegetables were boiled the mineral salts and some of the vitamins that are the most valuable constituents of these vegetables.

I do not wish to detract from the merit of Eyckmann and his followers, but it must be admitted that they were anticipated five centuries ago by the practical and quick-witted Florentines.

David Riesman, M.D., Philadelphia.

ACCUMULATIONS OF LIQUOR AMNII

To the Editor:—In "Queries and Minor Notes" (The Journal, October 24, p. 1247) under the caption "Unusual Obstetric Condition," Dr. Greer of Oakfield, Tenn., says: "Soon after the birth of the child, the patient began to have pains again. On examination I found the bag of waters protruding; it soon ruptured with a profuse rush of water. The placenta was delivered normally." In the answer the statement is made that the description of the case is not clear and that it is hard to conceive that there existed a large bag of waters with nothing in it except liquor amnii.

I was interested in this case report. Without entering into a polemic, may I cite the fact that it is not unusual for accumulations of liquor amnii to be found limited by portions of the amnion. This condition can be seen by an examination of a series of placentas. However, large accumulations of liquor amnii are rare. Frequently, though, a woman will give the history that the membranes have ruptured, yet the obstetrician during the course of the delivery may rupture the membranes, and considerable liquor amnii may escape.

A case in point: Though the membranes ruptured before the patient entered the hospital, yet later I ruptured the membranes, and about 500 cc. of clear fluid containing a few pieces of floating mucoid substance came away. Still later it was necessary to rupture membranes more resistant than the previous ones, and about 750 cc. of blood-tinged fluid was obtained. Both fluids proved to be liquor amnii. Examination of the placenta showed two distinct, nearly equal cavities limited by amnion, each with its base on the placenta and separated by a common amnion wall, but in the one was the origin of the umbilical cord. When I talked over this specimen with the late Dr. Aldred Scott Warthin, he stated that he had seen a few specimens like this one and that they were of simple amnion formation, not associated with multiple pregnancies. It could be in Dr. Greer's case a simple unruptured amniotic sac whose limiting amniotic membrane had withstood the pressure of labor.

John P. Gardiner, M.D., Toledo, Ohio.

FEVER TREATMENT OF CHOREA

To the Editor:—I was surprised to see an article in The Journal (August 1, p. 299) proposing the treatment of chorea by the induction of fever. This method of treatment was recommended by Dr. Tibor Kern, years ago (*Wien. klin. Wchnschr.* **36**:164 [March 1] 1923) with the injection of milk and is widely used in the clinics in Budapest with remarkable success.

Géza Hetényi, M.D., Budapest.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

POLIOMYELITIS AND POSSIBLE TRANSMISSION BY MILK

To the Editor:—Can you tell me what is the present belief in regard to the possibility of poliomyelitis being a milk-borne disease? I know of Dr. Aycock's study of the English epidemic, and I believe that two other epidemics, in which milk was supposed to be a factor, were reported in New York State. Have there been any others reported, and are these considered enough to prove that it may be carried by milk?

Emelie M. Perkins, M.D., Rutland, Vt.

Answer.—The epidemiologic evidence in the three outbreaks referred to is of the same order as that which seems to be accepted as proof of transmission through milk in outbreaks of such diseases as diphtheria and typhoid. Three other groups of cases (Wickmann, 1905, Frost, 1916, and Rosenow, 1930), while not as fully satisfying the criteria for milk-borne outbreaks because of the small number of cases or other circumstances from which other modes of spread could not be definitely excluded, nevertheless suggest transmission through milk. In the more common diseases the existence of numbers of precedent outbreaks make the idea of transmission through milk more readily acceptable in a given instance. However, on the question of probability it should be noted that the frequency of milk-borne poliomyelitis is not of a lower order than in the more common diseases which are sometimes milk borne, when allowance is made for their much greater prevalence. The age, space and time relationships between cases in these outbreaks differ so markedly from those of poliomyelitis in general that there can be no inference that milk plays a part in the general occurrence of the disease. These outbreaks have been interpreted by some as an indication that the pathway of infection in poliomyelitis is gastro-intestinal rather than upper respiratory but such a deduction is, of course, not necessarily any more valid than it would be in the case of diphtheria.

SWIMMING IN CASES OF SEXUAL NEURASTHENIA

To the Editor:—In Queries and Minor Notes (The Journal, August 15, p. 481) a correspondent wrote to you under the heading of Sexual Neurasthenia. How much value would swimming be in such a condition? The water would be cold enough to cause constriction of the parts affected, without any reaction after leaving the water, at least such is my impression. Please omit name.

M.D., New York.

Answer.—No effect, either good or bad, has been noticed from swimming in cases of sexual neurasthenia. In some cases a cold bath has a good tonic effect.

prostate and the seminal vesicles may be employed with the intradermal injection of some protein. In order to improve the circulation, medical diathermy should be applied to the prostate, vesicles and testicles. The amount of current is determined by the patient's sensation. The patient should report the feeling of warmth only and not of heat. An effect of diathermic treatments may be expected only if these treatments are administered frequently and if each treatment extends over a period of at least thirty minutes. The occasional low tolerance of the rectum for the prostatic electrode rises with each successive application. Quite often repeated injections of compounds derived from the anterior lobe of the pituitary body are helpful. The prognosis in instances of this character is always doubtful.

COMPLICATION OF CHOLECYSTOSTOMY

To the Editor:—A woman was operated on, July 18, for gallstones. Cholecystostomy was performed, as the condition of the patient did not warrant cholecystectomy. Bile drainage from the sinus was profuse for about two weeks, when it subsided and the sinus apparently healed; but a week later it opened again (preceded by pain resembling gallstone colic for about twenty-four hours). The sinus discharged bile for four or five days and then healed again, having been repeatedly packed in the upper third in an endeavor to have it heal from the bottom. A few days after it was closed, the attack of pain recurred and the sinus opened for the second time. It has since closed again and opened for the third time. The common duct is unobstructed, as the color of the feces has always been normal. Four small stones were removed from the gallbladder. The cystic duct is patent as the bile enters the gallbladder, but, after the sinus closes, contractions apparently force bile through the granulations and open the sinus instead of expelling it through the cystic duct. Is it considered likely that the sinus will close after opening three times since operation (July 18), or is it more likely that a second operation will be required? Can you suggest anything in connection with this case? Kindly omit name.

M.D., South Carolina

Answer.—Whenever a gallbladder fistula following cholecystectomy fails to heal within a reasonable length of time, or alternately heals and breaks down, accompanied by colic, it is a foregone conclusion that the cystic duct or neck of the gallbladder is blocked by stone or stricture. In this case, since bile appears in the gallbladder, this block is incomplete. An overlooked stone is the most common cause of this condition, and, as the skin fistula closes, the stone is forced into the duct, making stenosis complete. Repeated packing does more harm than good, because this is a fistula, not a sinus. It may be wise to look for a small sponge. It is unlikely that anything short of a cholecystectomy will effect a cure. This could probably be done with no more risk than a secondary exploration of the cystic duct.

PREOPERATIVE USE OF PARATHYROID EXTRACT TO CONTROL HEMORRHAGE

To the Editor:—My attention has recently been called to the fact that a surgeon is using injections of parathyroid extract-Collip as a routine prior to prostatectomy with the purpose of preventing postoperative hemorrhage. I should appreciate it if you would inform me whether there is any scientific basis for this routine use of parathyroid extract, and, if so, whether its use prior to other operations, such as tonsillectomy, is justified as a routine measure? Kindly omit name.

M.D., Alabama.

Answer.—There is at present no scientific basis for the preoperative use of parathyroid extract. However, it is reported clinically that parathyroid extract in a majority of cases controls hemorrhage from various causes (The Journal, April 23, 1927, p. 1301). Bleeding time and clotting time appear to be definitely shortened in the menses by its use (*Am. J. Obst. & Gynec.* **13**:156 [Feb.] 1927).

Whether or not postoperative hemorrhage can be controlled by the use of parathyroid extract is a problem of interest in the light of theories of coagulation and is one which might well be the object of scientific research.

X-RAYS IN PARONYCHIA

To the Editor:—In my cases of paronychia I have been using roentgen treatment with apparently good results. Will you please let me know whether the x-rays are a recognized treatment for this condition? I have had this treatment questioned in a case coming under the compensation insurance act and would appreciate your opinion. I should also like to know whether the x-rays are of any value in other types of infection following wounds of the finger.

H. A. Gallup, M.D., San Luis Obispo, Calif.

Answer.—MacKee states that he has had a few good results and many failures with the x-rays in the treatment of chronic pyogenic paronychia. X-rays should not be used as a routine in infections following wounds of the finger.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

American Board of Obstetrics and Gynecology: *Clinical.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

American Board for Ophthalmic Examinations: Boston, Dec. 21. Sec., Dr. Wm. H. Wilder, 122 S. Michigan Blvd., Chicago.

Arizona: Phoenix, Jan. 5-6. Sec., Dr. B. M. Berger, 12 North Central Ave., Phoenix.

California: *Reciprocity.* Los Angeles and San Francisco, Dec. 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Colorado: Denver, Jan. 5. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

Delaware: *Regular and Homeopathic.* Wilmington, Dec. 8-10. Sec., Dr. Harold Springer, 1013 Washington St., Wilmington.

District of Columbia: *Basic Science.* Washington, Dec. 29-30. Sec., Dr. W. C. Fowler, District Building, Washington.

Kansas: Kansas City, Dec. 8-9. Sec., Dr. C. H. Ewing, Larned.

Kentucky: Louisville, Dec. 1-3. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville.

Louisiana: New Orleans, Dec. 10-12. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maryland: *Regular.* Baltimore, Dec. 8-11. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore. *Homeopathic.* Dec. 17-18. Sec., Dr. John A Evans, 612 W. 40th St., Baltimore.

Minnesota: *Basic Science.* Minneapolis, Jan. 5-6. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis.

North Carolina: *Endorsement.* Raleigh, Dec. 7. Sec., Dr. John W. MacConnell, Davidson.

North Dakota: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, Grand Forks.

Ohio: Columbus, Dec. 8-10. Sec., Dr. H. M. Platter, 85 E. Gay St., Columbus.

Oregon: Portland, Jan. 5-7. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

Rhode Island: Providence, Jan. 7-8. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

Tennessee. Memphis, Dec. 18-19. Sec., Dr. Alfred B. DeLoach, Medical Arts Bldg., Memphis.

Utah: Salt Lake City, Dec. 1-2. Dir., Mr. S. W. Golding, 412 State Capitol Building, Salt Lake City.

Virginia: Richmond, Dec. 8. Sec., Dr. J. W. Preston, 720 Shenandoah Life Bldg., Roanoke.

Wisconsin: *Basic Science.* Milwaukee, Dec. 19. Sec., Prof. Robert N. Bauer, 3414 West Wisconsin Ave., Milwaukee.

Iowa June Report

Mr. H. W. Grefe, director, Examinations and Licenses of the Iowa State Department of Health, reports the written examination held at Iowa City, June 2-4, 1931. The examination covered 8 subjects and included 100 questions. An average of 75 per cent was required to pass. Ninety-eight candidates were examined, 97 of whom passed and one failed. The following colleges were represented:

FAILED

College	Year Grad.	Per Cent
University of Colorado School of Medicine	(1930)*	84 5
Rush Medical College	(1931)	81.5
State University of Iowa College of Medicine	(1930)*	90,
	(1931)*	79.4, 82.3, 82.8, 82.9, 83, 83.1, 83.3, 83.8, 83.8, 84.1, 84.6, 84.6, 84.8, 84.9, 85, 85.4, 85.4, 85.6, 85.8, 85.9, 86.1, 86.3, 86.4, 86.4, 86.4, 86.4, 86.5, 86.8, 86.8, 86.8, 86.9, 87, 87, 87.3, 87.5, 87.6, 87.6, 87.6, 87.8, 87.8, 87.9, 88, 88, 88.3, 88.3, 88.4, 88.4, 88.4, 88.5, 88.5, 88.6, 88.8, 88.9, 89, 89.1, 89.3, 89.3, 89.4, 89.4, 89.5, 89.6, 89.8, 89.9, 89.9, 89.9, 90, 90, 90, 90.1, 90.1, 90.1, 90.4, 90.8, 90.8, 90.9, 90.9, 90.9, 91.3, 91.5, 91.6, 91.8, 91.8, 92, 92.3, 92.4, 92.5, 93.1, 93.3, 93.9
University of Minnesota Medical School	(1931)	86.1
St. Louis University School of Medicine	(1926)	81.5
Creighton University School of Medicine	(1930)	83.9
University and Bellevue Hospital Medical College	(1925)	88.6
University of Vienna Faculty of Medicine	(1930)†	81.1

FAILED

College	Year Grad.	Per Cent
Moscow State University Faculty of Medicine	(1916)†	65

Mr. Grefe also reports 15 physicians licensed by reciprocity with other states, and one physician licensed by endorsement from Feb. 11 to Aug. 10, 1931. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
College of Med. and Surg. (Physio-Medical), Chicago	(1902)	Penna.
Rush Medical College	(1931)	Illinois
University of Kansas School of Medicine	(1927)	Kansas
Kentucky University Medical Department	(1904)	Louisiana
Louisville Medical College	(1907)	New Mexico
Tulane University of Louisiana School of Medicine	(1927)	Louisiana
Washington University School of Medicine	(1929), (1930)	Missouri
Creighton University School of Med.	(1927), (1928), (1930)	Nebraska,
	(1930)	Kansas

of historical interest. He says that, while he has administered anesthetics during the war and since then, he has used chloroform anesthesia alone scarcely ten times in his life. He is opposed to full narcosis with avertin because of the lack of control. He takes a much more favorable attitude toward its use for basic narcosis. He declines to commit himself concerning the number of deaths caused by avertin, and maintains that one must distinguish sharply between deaths that occur with full narcosis and those in which a more conservative attitude is maintained.

It may seem strange to the reader that much can be added to the general knowledge of the use of the anesthetics. Probably no method at present in vogue involves a death rate of more than one in one thousand in the hands of a reasonably skilled anesthetist, and when death has occurred it is often difficult, or impossible, to determine whether it resulted from the anesthetic or from unavoidable conditions; hence it is not easy to make an exact comparison of the relative safety of two methods of inducing anesthesia. This small volume is recommended to the conscientious student and to the physician who is not a trained anesthetist but who must occasionally administer an anesthetic, provided they are willing to take infinite pains in mastering this subject. It is not recommended to those who are not willing to take such pains, for it will only convince them of their unfitness to perform the duties which they assume.

Nutrition and Physical Fitness. By L. Jean Bogert, Ph.D., Instructor in Experimental Medicine, Yale University. Cloth. Price, $3. Pp. 551, with 63 illustrations. *Philadelphia: W. B. Saunders Company, 1931.*

Dr. Bogert has incorporated into one book a multitude of associated facts collected from the fields of home economics, nutrition, physiology, chemistry and medicine. Considering her ambitious aim and the wide scope of the material, she has produced an excellent volume. It should make its appeal to the intelligent layman, as it presents in simple nontechnical language the related facts of these sciences. The subjects covered include the classification of foodstuffs, the nutritional requirements of the body and how they are best met by proper food consumption, the normal processes of the body, and perhaps of greatest help to the housewife, the practical dietetics of meal planning. In these chapters the author has supplemented the text with numerous well organized meal planning charts and outlines. In view of their clarity and adapability, they will greatly assist the reader to use his knowledge in the routine of daily life in exercising "common sense dietary control." Dr. Bogert has avoided giving any radical or biased advice and has exposed to ridicule the fallacies of the food faddist. Her attitude is that of the practical scientist attempting to show how the facts of science may serve as tools for building optimal health. The concluding chapters on senescence, overweight and diet in disease are also free from the fads so commonly found in books giving advice to the layman.

Scharlach: Ätiologie, antitoxische Serumtherapie und Schutzimpfung. Von Prof. R. Kraus, Generaldirektor des staatl Gesundheitsamtes von Chile. Unter Mitarbeit von Dr. G. Morawetz, Primarius am Franz Josef-Spital in Wien, Dr. J. Zikowsky, Assistent am Franz Josef-Spital in Wien, und Dr. J. Teichmann, Assistent am staatl. Serotherapeutischen Institut in Wien. Paper. Price, 45 marks. Pp. 365, with illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1931.

The purposes of this monograph as stated in the preface are to recommend use of the name Moser-Dick serum instead of Dochez-Dick serum to designate scarlet fever antitoxin, and to orient the physician with regard to recent developments in scarlet fever. The reasons advanced in support of the name Moser-Dick serum are that Moser was the first to attempt to produce a serum specific for scarlet fever and that the Dicks discovered scarlet fever antitoxin and developed a successful method for producing it. American readers who are accustomed to use the serum under its scientific descriptive name, Scarlet Fever Antitoxin, will not understand Kraus's insistence on the hyphenated historical name unless they know of his long association with the State Serum Institute in Vienna, where Moser produced his antistreptococcus serum twenty years ago, when Kraus was an assistant in the institute, of which he later became director. The failure of Moser's serum is attributed to Moser's inability to determine the etiology of scarlet fever, all his inoculations of animals having resulted negatively, and to his ignorance of the existence of scarlet fever toxin and scarlet fever antitoxin, so that attempts to test the specificity and potency of his serum were limited to determining its antibacterial action. The author subscribes to the Dick theory of the etiology and mechanism of scarlet fever as a disease caused by a specific hemolytic streptococcus, which produces a soluble toxin, which in turn is employed for the production and standardization of scarlet fever antitoxin. The proved value of scarlet fever antitoxin as a specific serum therapy in scarlet fever is emphasized. The chapters on the Dick test and active immunization with the toxin are less convincing. The author questions the meaning of the Dick test but fails to describe the technic employed in producing the toxin or the technic used in making and observing the skin tests on which his conclusions are based. On the whole, Kraus places himself in the questionable position occupied by many European scientists who accept the specificity and efficacy of scarlet fever antitoxin but waver in regard to the specificity of the toxin with which the specific antitoxin is produced.

The Practical Treatment of Diabetes. By T. Izod Bennett, M.D., F.R.C.P., Physician with Charge of Outpatients, Middlesex Hospital. Cloth. Price, $2. Pp. 107. New York: Richard R. Smith, Inc., 1931.

The discussion opens with a brief summary of the clinical manifestations, including the more common laboratory procedures, in diabetes mellitus. The basic principles in treatment are then outlined and their practical application is described in some detail. The advantage of several smaller meals over fewer larger ones as a preventive against glycosuria is pointed out. Diet is discussed along broad lines, and several specimen menus are suggested. The author properly points out that patients are more likely to follow diets constructed in accordance with the foregoing principles than those calculated with mathematical exactness. The administration of insulin is described, as are the indications for its use. The more important complications and their management are briefly discussed. On the whole, the subject is well presented in the few pages which constitute this little book and there are many practical points which can be of help to the general practitioner. It is doubtful, however, whether the treatment of diabetes mellitus can be so briefly presented without the omission of some essential information in the actual management of the disease.

Experiments on Vitamin A Deficiency in Rats and the Quantitative Determination of Vitamin A. By Skúli V. Gudjónsson. Paper. Pp. 189, with 72 illustrations. Copenhagen: Levin & Munksgaard, 1930.

The busy clinician who expects to find in this monograph information dealing with the sources of vitamin A and their relative potencies will be disappointed. However, there is presented an excellent discussion of the pathology of vitamin A deficiency in the rat, the animal most commonly employed for such studies. The monograph deals with the finer details of the biologic technic for measuring this dietary essential, though, curiously enough, specific directions for calculating the relative potencies of substances tested are lacking. The many factors that have a bearing on the biologic method of assay of vitamin A are discussed and the extreme care required in carrying out the details of the assay as well as the interpretation of results is emphasized. While most of the points stressed in the book are commonly included in the practice of vitamin assay in this country, in several instances the experiences of Dr. Gudjónsson seem exceptional. The book is translated from the Danish and provides a worth-while summary of certain important technical aspects of the study of vitamin A.

Physical Requirements for Commercial Flyers. *By John S. Chase, A.B., M.D., Flight Surgeon, U. S. Army, and Nolie Mumey, A.M., M.D., Flight Surgeon 120th Observation Squadron, 45th Division, Lowry Field.* Paper. Pp. 31, with illustrations. Denver: Clason Publishing Company, 1931.

This little manual, apparently privately published, contains about 3,000 words. It is so simple that it hardly merits the classification of a manual. The book of requirements of the medical branch of the department of aeronautics of the government lists in a detailed manner the actual physical requirements demanded from pilots. These instructions are available to any one who asks for them, without cost, except postage. Hence this booklet may be considered an unnecessary contribution to medical literature.

Medicolegal

Trauma and Tuberculous Meningitis

(Brim v. Home Acc. Ins. Co. (La.), 131 So. 762)

On account of the death of her son, alleged to have been caused by an accident occurring in the course of his employment, the plaintiff sued the Home Accident Insurance Company, which had underwritten the liability of his employer under the Louisiana workmen's compensation act. The trial court gave judgment in favor of the insurer, and the plaintiff appealed to the court of appeal of Louisiana, Orleans.

Ryan, the son, fell from a ladder, Oct. 15, 1928. So far as the evidence shows, he was in good health before the accident. Immediately after it he appeared to be very much dazed and at first was unable to express himself clearly and was bleeding from a wound over his left eye. He was taken to a hospital, where the wound was sutured. He refused to remain there, but he was subsequently treated by two physicians acting on behalf of his employer. Nov. 22, 1928, they discharged him as cured. Later, complaining of weak and dizzy spells, he consulted another physician, by whom he was treated until Dec. 31, 1928, when he was discharged. He appears to have grown progressively worse after the accident. So far as is known, Ryan consulted no physician between Dec. 13, 1928, and the date of his death, March 10, 1929, about five months after the accident, when he was found dead in his room. The coroner performed an autopsy and certified on the basis of a "gross examination" that the cause of death was as follows:

> Cerebella abscess with necrosis of the left hemisphere. Multiple areas of necrosis on surface of cerebrum; and calloso marginal fissure of each lateral hemisphere. Sub-aracnoid general congestion with oedema of brain. Smear *negative for bacteria.*

A microscopic examination of a section of the cerebellum was made by an expert pathologist, who reported that the cause of death was tuberculous meningitis, or multiple tuberculomas. The plaintiff, the mother of the dead workman, contended that the fall activated a dormant tuberculosis and hastened her son's death, thus entitling his dependents to recover compensation under the workmen's compensation act. The defendant insurance company, however, contended that death was due to internal causes and that the fall had nothing to do with it.

The medical witnesses agreed that a tuberculoma of the brain is the result of secondary infection, the primary infection being elsewhere in the body. Dr. Johns, testifying for the plaintiff, expressed the opinion that the impact on the head when the workman fell damaged the tissue within the skull and made it more susceptible to tuberculous infection than normal tissue is. He regarded the accident as a contributing cause of death. The reports of the coroner, who performed the autopsy, and of the pathologist who made the microscopic examination showed that there was an abscess "in the back of the skull." The location of the abscess, Dr. Johns explained, was not inconsistent with its having resulted from the impact of the fall on the frontal region, since "traumatic injury to the frontal portion of the brain is more likely to produce hemorrhage on the opposite side than in the immediate vicinity of the blow." The postmortem examination disclosed no evidence of hemorrhage, and this, it was claimed, precluded the idea of any serious trauma within the skull. With respect to this, however, Dr. Johns testified, and his testimony was not controverted by other medical testimony, that after five months, the period that elapsed between the accident and death, "the encroachment of the abscess would have liquefied the blood, transformed it all into exudate, so that it would not be recognizable as blood." On behalf of the insurer it was contended that the fact that five months elapsed between the time of the fall and the time of death weakened the plaintiff's contention that the accident was a contributing cause. But, Dr. Johns testified, "it would be compatible with the usual history of brain abscesses for a man to live that long with tubercular abscess."

The pathologist who made the microscopic examination and the physician who last treated the injured workman supported the insurer's contention that trauma had nothing to do with causing death, but neither of them would say that trauma could not have been a factor in producing that result. The pathologist admitted that necrosis due to trauma differs only minutely from a similar condition due solely to bacterial action. The physician who last treated the deceased expressed the opinion that the tuberculomas of the brain would have caused death eventually independent of the accident, but admitted that theoretically, if tuberculous infection was present in the brain, trauma would activate its destructive process so as to cause earlier death.

In summing up the case, the court quoted from *Behan* v. *John B. Honor Co.*, 143 La. 348, 78 So. 589, as follows:

> The proof goes no further, in support of the defense of this suit, than to show that the plaintiff might, and perhaps would, at some time, have become disabled by the disease that was lurking in his system, even if the accident complained of had not happened. And that is not much more of a defense than to say that every man must some day come to the end of his worldly career, accident or no accident.

In *Fraze* v. *McClelland Co.*, 200 Iowa 944, 205 N. W. 737, it was held that proof of absence of illness prior to injury and rapid development of tuberculosis thereafter, together with medical testimony to the effect that tuberculosis might be accelerated by traumatic causes, was sufficient to support a finding that tuberculosis was caused by the trauma. In *Schlenker* v. *Garford Motor Truck Co.*, 183 App. Div. 166, 170 N. Y. S. 439, 441, it was held that medical testimony to the effect that a trauma "of the kind which the employee received could excite a dormant tuberculosis condition into activity and accelerate death," in the absence of evidence to the contrary, was sufficient to support a recovery, notwithstanding evidence to the effect that no traumatic conditions prevailed at the time of the death of the employee three weeks after the accident.

The court of appeal therefore reversed the judgment of the trial court in favor of the insurer and ordered judgment be given in favor of the mother of the deceased workman.

Insurance: Representations as to Prior Health.—The insured, when she made application for insurance, was asked to name all diseases or injuries for which she had consulted a physician within five years. The answer to this question, written by the insurer's agent, was "None." The evidence showed, however, that this was not the answer given by the insured, but that both she and her husband told the agent that she had been injured in lifting a piano, a hemorrhage following the strain. Moreover, the insurer's physician testified that she told him that "she had not been treated for anything that amounted to anything, nothing worth mentioning." Such a statement was sufficient to put the physician on notice that the insured had "ailments." If the company wanted to know, or if the physician wanted to know, what those ailments were, inquiry should have been made of the insured. The insurer's physician testified also that the insured was apparently "the perfection of health" when he examined her. All the proof shows, said the Supreme Court of Arkansas, that there was no intentional false statement. The physician who made the examination and the agent were in possession of facts from which they could have learned, if they had made inquiry, everything that after the death of the insured they complained they did not know. The judgment of the trial court against the insurer and in favor of the beneficiary under the policy was affirmed.—*The Maccabees v. Gann (Ark.), 34 S. W. (2d) 456.*

Society Proceedings

COMING MEETINGS

Association of American Medical Colleges, New Orleans, November 30-December 2. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Association of Military Surgeons of the United States, New Orleans, November 30-December 2. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Philippine Islands Medical Association, Manila, December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Radiological Society of North America, St. Louis, November 30-December 4. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., December 8-11. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

are much more effective than the same number of large doses. Reactions are a sure sign of wasted insulin. In this method the blood sugar becomes a guide to insulin dosage and not to total metabolism. A quantity of insulin which produces an abnormally low blood sugar two or three hours later is partly wasted. The patient should be kept in that state of balance which will enable him to utilize to the fullest extent the insulin that he produces himself. The body weight is an important factor in the arrangement of the diet. If the patient is undernourished, the diet should be modified accordingly, the constant aim being to keep the patient practically urine sugar free, with a maximum insulin coefficient and the body weight properly controlled. The method permits the epicurean patient to indulge himself with safety. The pseudoscientific food and drug fads that have grown up around diabetes can well be forgotten. It is not claimed that the method is infallible. There are other factors than insulin involved in the diabetic process. In the metabolism of profound coma, insulin often fails to work or acts feebly. Often in the severe diabetes of childhood insulin response is not in accord with the one to four ratio but the method is just as useful a guide to helpful therapy as if it were. The insulin coefficient offers a valuable control to clinical research on diabetes, which must be done on the human being. There are many unsolved problems. For the great majority of cases, however, both for diagnosis and for treatment, it is by far the best method with which the author has worked.

Archives of Internal Medicine, Chicago

48: 351-536 (Sept.) 1931

*Exophthalmic Goiter: Development of Refractoriness to Iodine. W. O. Thompson and Phebe K. Thompson, Chicago.—p. 351

*Congestive Heart Failure. X. Measurement of Ventilation as Test of Cardiac Function. T. R. Harrison, F. C. Turley, E. Jones and J. A. Calhoun, Nashville, Tenn.—p. 377.

*The Staff Count: Its Importance in Acute Infectious Disease A. Weiss, New York.—p. 399.

*Unexplained Gastric Anacidity. W. S. Polland and A. L. Bloomfield, San Francisco.—p. 413.

Metabolism in Pneumonia: II. The Mechanism of Retention of Chloride in Pneumonia. I. Greenwald, New York—p. 418.

Id. III. Excretion of Anions and of Total Base in Pneumonia. I. Greenwald, New York.—p. 440.

*Significance of Cerebrospinal Fluid Sugar. E. F. Wahl, Thomasville, Ga.—p. 446.

Native Complement in Hyperthyroidism. N. Novick, Washington, D. C. —p. 462.

*Respiratory Quotient: Its Use in Diagnosis of Diabetes Mellitus. M. Wishnofsky and C. S. Byron, Brooklyn.—p. 470.

*Significance of Potassium-Calcium Ratio and of Inorganic Phosphorus and Cholesterol of Blood Serum in Arterial Hypertension. A. A. Weinstein and Soma Weiss, Boston.—p. 478

Thrombo-Angiitis Obliterans (Buerger): VI. Chemistry of Blood. Mae Friedlander and S. Silbert, New York—p. 500

Cutaneous Lesions Associated with Deficiency in Vitamin A in Man. C. N. Frazier and C. Hu, Peiping, China.—p. 507.

Calcium and Phosphorus Metabolism in Case of Nontropical Sprue with Associated Tetany. A. Marble and W. Bauer, Boston.—p. 515.

Exophthalmic Goiter.—The Thompsons report that during the prolonged continuous administration of iodine one patient with exophthalmic goiter, after showing a remission, became completely refractory to 6 mg. of iodine daily, a dose that was at other times sufficient to produce a maximum reduction in the basal metabolism. Four other patients became at least partially refractory to iodine during its prolonged administration in doses of from 6 to 250 mg. daily. In four of the preceding five cases, iodine was omitted and the refractoriness disappeared. The fifth patient was operated on when the metabolism was rising rapidly during the continuous administration of iodine, and he died about forty hours afterward from a typical postoperative crisis. This reaction was indistinguishable from those previously seen in patients who were operated on without receiving iodine. The exact length of time necessary for the refractoriness to disappear completely when iodine is omitted is unknown; it was observed to do so within twenty-four days. When the metabolism reached its highest point during the administration of iodine, the disease was more severe than it had previously been, and all the peculiar nervous manifestations not only were present but were more intense. In two patients, exophthalmos was first noted as the rate of metabolism was rising during the continuous administration of small doses of iodine, and in the other two it became more marked under these circumstances. The reactions appear to be more characteristic of severe cases than of mild cases. The authors' observations do not appear to support the hypothesis that the peculiar nervous manifestations of exophthalmic goiter are always under control as long as an excess of iodine is being administered. In severe cases, operation should be performed as soon as a maximum reduction in the rate of basal metabolism occurs. In any case, when the metabolism has increased markedly during the administration of iodine, it is probably wise to postpone operation until after this medication has been omitted for from three to four weeks, with the patient at rest in bed, to allow the refractoriness to disappear, and until the administration of iodine has been resumed.

Congestive Heart Failure.—Harrison and his associates present data from which it seems clear that when there is no obstruction to breathing, subjective respiratory distress (dyspnea) on exertion is dependent on three factors. These are (1) the volume of the ventilation, (2) the vital capacity, and (3) the sensitiveness of the psyche. The third factor is unimportant except in neurotic persons. It is evident that one feels short of breath when one's breathing is greater than a certain fraction of one's maximum ventilation. The actual dyspnea is dependent not only on the presence or absence of disease of the various organs concerned in internal and external respiration but also on the nutritional status. By means of appropriate correction, however, it is possible to eliminate more or less from consideration differences in nutrition and to obtain figures that are somewhat proportional to the degree of functional alteration of the heart or other portions of the respiratory-circulatory apparatus. However, it should be noted that the actual distress and the actual respiratory measurements were the same in obese persons with normal hearts as in subjects with early cardiac disease and normal nutritional status. This fact indicates the great importance of reducing the weight of obese patients with cardiac conditions. The authors believe that the ventilation index affords a fairly accurate objective answer to the question "How short of breath are you?" For this reason it seems a better guide to cardiac function than other tests that have been devised. It seems probable that the test will be of some value in measuring the effect of various therapeutic measures, such as the administration of digitalis, in patients with different types of cardiac disease in various stages of development. The question arises as to whether, aside from research, the measure is of practical value. The experience with the test is not yet sufficiently broad to allow any certain answer to this question. The observations that have been reported for patients with cardiac neurosis and for those with very early cardiac disease suggest that the method may be of some diagnostic as well as prognostic value.

Staff Count.—Weiss emphasizes the fact that for those who employ the staff count method of morphologic examination of the blood it is extremely important to bear in mind that a single report of a high staff count does not spell a fatal prognosis. Daily morphologic examinations of the cell are of inestimable importance, for it is on the curve that the prognosis of the case depends. It must be remembered that the changes in the blood are always to be considered conjointly with the complete clinical signs. It is also advisable to bear in mind that outstanding changes in the blood cannot be disregarded because of the lack of clinical corroboration. Nevertheless, it is also true that a definite clinical picture cannot be negated by a lack of confirmatory hematologic observations. Last, but not least, it must always be employed as a means of diagnosis. Although one usually finds a definite biologic chain of leukocytic interaction in infections, every now and then, owing to some unrecognizable cause, the blood picture fails to indicate the patient's condition. One must not forget that even now the reason for the appearance of the various cells in the circulation is not known, and therefore no cause can be ascribed for their failure to appear. These hematologic failures must not serve to discourage the clinician or the laboratory worker but should spur him on to deeper and more exact observations. Careful serial morphologic examinations in which use is made of the neutrophilic subclasses are of inestimable value in the hematologic study of all infectious diseases.

Gastric Anacidity.—According to Polland and Bloomfield, failure to secrete acid (or indeed any actual gastric juice) occurs in a certain number of persons, apart from the well most marked in patients with hypertension and renal involvement (227 mg. per hundred cubic centimeters) and least in patients with hypertension and cardiac involvement (194 mg. per hundred cubic centimeters). Of thirty-seven cases of uninvolved hypertension, only five (13 mg. per hundred cubic centimeters) showed an unexplainable hypercholesteremia. There was no relation between the potassium-calcium ratio and the cholesterol content of the blood in hypertension. The authors believe that neither changes in the potassium-calcium ratio nor hypercholesteremia can be considered as playing a fundamental rôle in the development of arterial hypertension. Elevation of the potassium and cholesterol levels observed in one group of patients with hypertension was the result rather than the cause of changes in the cardiovascular system.

Arkansas Medical Society Journal, Little Rock

28: 83-98 (Oct.) 1931

Report of Case of Electrical Burn Opening Left Chest Cavity. H. A. Higgins, Little Rock.—p. 83.
Postoperative Sequela. A. G. Harrison, Searcy.—p. 84.
Surgeon's Problem in Gas Gangrene. L. V. Parmley, Little Rock.—p. 87.

California and Western Medicine, San Francisco

35: 249-336 (Oct.) 1931

Poliomyelitis Problem—From Point of View of Its Epidemiology. W. L. Aycock, Boston.—p. 249.
Meningeal Allergy in Tuberculosis. Esther Somerfeld and E. Ziskind, Los Angeles.—p. 255.
Cervix as Factor in Hysterectomy. W. H. Gilbert, Los Angeles.—p. 262.
Early Pregnancy: Hormone Test for Its Diagnosis; Utilization of Rabbits for Test. J H. Dorn, J. R. Morse and E. I. Sugarman, San Francisco.—p. 266.
Cinchophen Poisoning: Case. E. Bogen, Los Angeles.—p. 269
Anesthesia—A Medical Specialty. W. W. Hutchinson, Los Angeles.—p. 271.
Postural Tensions for Normal and Abnormal Human Behavior: Their Significance. Part II. E. J. Kempf, New York.—p. 272.
Mental Hygiene Survey of California: Part II. F. H. Allen, Philadelphia, and G. Myers, Los Angeles —p. 275.
Female Sex Hormones and Menstruation. C. F. Fluhmann, San Francisco.—p. 279.
Cancer of Stomach: Surgical Treatment of Advanced Cases. E. Gehrels, San Francisco —p. 284.
Problem of Chronic Arthritis. E. H. Falconer, San Francisco.—p. 288.
Therapeutic Irradiation of Ovaries. A. C. Siefert, Oakland.—p. 290.
Present Duration of Breast Feeding: Report of One Thousand American Well Babies. E. J. Lamb, Santa Barbara —p. 297.
Recurrent Retinal Hemorrhages: Cases. T. C. Lyster, Los Angeles.—p. 300.

Journal of Allergy, St. Louis

2: 405-526 (Sept.) 1931.

*Investigations of Mechanism of Passive Transfer of Skin Sensitization. F. E. Becker and W. C. Black, Denver.—p. 405
*Fever by Diathermy in Treatment of Allergic Disease. S. M. Feinberg, S. L. Osborne and M. L. Afremow, Chicago.—p. 414.
Effects of Fever, Either Accidentally Incurred or Artificially Produced, in Bronchial Asthma. S. S. Leopold and S. G. Stewart, Philadelphia.—p. 425.
Hyperthermia Induced by High Frequency Electric Current in Treatment of Intractable Asthma. H. Miller and G. Piness, Los Angeles.—p. 436.
A Study of Reactions in Nonsensitive Skin of Mixtures in Vitro of Reagin and Atopen. F. L. Foran and M. R. Lichtenstein, Chicago.—p. 444.
Effect of Allergy on Allergen Absorption Following Parenteral Injections. M. B. Cohen, E. E. Ecker and J. A. Rudolph, Cleveland.—p. 453.
Economic Results from Treatment of Pollen Asthma and Hay Fever. L. N. Gay, Baltimore.—p. 456.
Distribution of Reagins in Blood Plasma. E. L. Sherrer, Cleveland.—p. 467.
*Dropping Out of Pollen Seasons (Relation of Pollen Content of Air to Hay Fever, Asthma and Dermatitis of Exposed Parts). W. W. Duke, Kansas City, Mo.—p. 471.
*Studies in Urticaria: Influence of Metabolic Factors. L. H. Criep and L. Wechsler, Pittsburgh.—p. 479.
*Basal Metabolism and Blood Calcium Studies in Asthma and Allergic Eczema. R. A. Kern and Ida Teller, Philadelphia.—p. 488.
Heat Sensitiveness: Case. R. A. Wilson, Tucson, Ariz.—p. 499.

Mechanism of Passive Transfer of Skin Sensitization.—The work presented by Becker and Black was planned with the purpose to determine, if possible, whether certain failures in passive transfer with serums from highly allergic subjects can be explained on the basis of serum properties of the donor, blood group relationships, differences in skin susceptibility of the recipient, or some other unknown factor. They noted that two out of three serums from sage hypersensitive subjects failed to sensitize the skin to the sage antigen in a group of twenty-three individuals. The refractory serums also failed to produce positive reactions with other antigens to which the donors are hypersensitive. With the positively reacting serum, twenty-two out of twenty-three tests were positive, the one member of the group probably having a refractory skin. Passive transfer may or may not be obtainable with the serums of patients with positive skin reactions and with marked clinical manifestations; also skin-sensitive individuals who never have had clinical manifestations may give a positive passive transfer. Passive transfer is not dependent on degree of skin sensitivity, on clinical manifestations, on temporary allergic state, or on previous desensitization treatment. Passive transfer is not dependent on differences in the blood group of the donor and recipient. The sensitizing factor is not absorbed in vitro by the blood cells from opposite blood groups or by fresh tonsil tissue, obtained from nonallergic individuals. The leukocytes do not carry the sensitizing factor. Serial injections increase skin sensitization. While failure in passive transfer may be due to a refractory skin, as noted by many observers, it seems probable that it may be due in some instances to the absence of the sensitizing factor in the donor's serum.

Fever by Diathermy.—Feinberg and his associates believe that there is no doubt that fever treatment by diathermy as used by them is capable of giving benefit to some sufferers from asthma. Disadvantages to this form of treatment are its expense due to overnight hospitalization, discomfort to the patient, the time-consuming element to the operator, the comparatively temporary nature of the relief, and the incomplete knowledge of the limitations of its uses. They are attempting to overcome some of these difficulties by experimenting with variations in technic and other observations. It must be emphasized that it is necessary to use caution in the selection of cases for this treatment. The treatment is strenuous and apparently places a temporary burden on the heart. It is necessary to make careful preliminary studies on the patient before such treatment is undertaken. Furthermore, it is best to limit this treatment to those persons who have resisted all ordinary forms of treatment. The authors are also investigating the use of this form of therapy in other allergies, such as hay fever, hyperesthetic rhinitis, and urticaria. At this time they have no intention of entering into a discussion of the mechanisms involved in the production of relief by this fever therapy. However, their experiments thus far lead them to believe that it lies neither in a change in the acid-base balance of the blood nor in the sensitiveness of the patient to the allergen, at least as far as skin sensitivity is concerned. Neither does it depend on any decided changes in the reagins. Developments in future experiments may possibly furnish a clue for this interesting phenomenon.

Dropping Out of Pollen Seasons.—Estimations of the pollen content of the air made daily by Duke for a period of four years show that the normal season, 1927, in which all the trees, grasses and weeds pollinated luxuriously, is a gross exception to the rule. Instead of the normal season, one usually finds that the pollination of one or more or all of the trees or grasses or weeds is reduced grossly. This is caused in the spring season by frosts and in the summer and fall seasons chiefly by drought. During this period of four years, the pollination of each pollinating plant, except the ragweed, was almost completely inhibited once or for several seasons. The ragweed was not completely inhibited at any season but in 1930 was reduced to a small proportion of normal. The author believes that pollen counts and pollen charts are almost indispensable to the accurate diagnosis and treatment of pollen disease.

Studies in Urticaria.—From an analysis of the allergic data in forty cases of urticaria, Criep and Wechsler conclude that changes in the gastro-intestinal and thyroid functioning are for the most part either coexisting with, contributory to, or resulting from the urticarial state. They are not sufficiently specific to bear a direct causal relation to urticaria. They may increase an existing predisposition and contribute to the general state of susceptibility of the patient. Urticaria patients frequently give a positive familial allergic history. They freseemed to have been entirely within the normal range, being affected mainly by the level of food intake. Whatever changes may occur in the way of deposition or absorption of bone in rats fed large amounts of viosterol, analyses of the leg bones of these animals show normal contents of calcium, phosphorus and carbon dioxide.

Effect of Magnesium on Magnesium and Calcium Metabolism in Man.—Carswell and Winter added 8 Gm. of magnesium lactate a day over periods of twenty and twenty-four days, respectively, to the uniform, phosphorus-adequate diet of two subjects. Definite calcium retention resulted in one case and a slight calcium retention in the other. Conversely, the magnesium retention in the former case was slight; in the latter it was marked. The urinary calcium was decreased slightly in both cases. The fecal calcium was materially decreased in the case which showed marked calcium retention and increased in the other. The urinary and fecal magnesium were increased in both cases. On the basis of their observations the authors conclude that with adequate phosphorus intake magnesium appears to favor calcium storage instead of causing calcium loss.

Experimental Hyperparathyroidism.—Bodansky and Jaffe believe that the hypocalcemia they observed in guinea-pigs several days after the discontinuance of prolonged parathyroid treatment was probably due to the rapid redeposition of calcium in the previously depleted bones, associated with changes in the phosphorus balance. It is also suggested that a temporary hypofunction of the parathyroids may have been caused by the prolonged parathyroid treatment; immediately after the termination of experimental hyperparathyroidism, the hypofunction of the parathyroids contributes to the production of the complex that is characteristic of the period of recovery—hypocalcemia, hyperphosphatemia, and a positive calcium and phosphorus balance. The same explanations are suggested for the analogous developments following the removal of parathyroid adenomas in osteitis fibrosa cystica (Recklinghausen's disease).

Fixed Bases, Calcium and Sulphates in Urine.—Hoffman reports a new system for the determination of the individual and total fixed bases as well as sulphates in urine. All the analyses are made from a single protein-free filtrate prepared from the urine. The methods for total fixed base, calcium and sulphates were modified so that they have the advantage of simplicity, accuracy, rapidity, and of requiring only a small quantity of urine. Data are presented confirming the accuracy of the proposed methods.

Occupational Therapy and Rehabilitation, Baltimore

10: 281-361 (Oct) 1931

Occupational Therapy in a State Hospital for the Insane. W. L. Patterson, Fergus Falls, Minn.—p. 281.
Value of Occupational Therapy in Treatment of Mental Cases. R. C. Fagley, St. Louis.—p. 291.
From Life to Life. Annie W. Goodrich, New Haven, Conn.—p. 299.
Art as Occupational Therapy: Case of Miss Clark. Wilda Peck Mackenzie, Boston.—p. 307.
What a Student of Occupational Therapy Should Expect from a Department of Occupational Therapy in a Hospital. Grace L. Bennett, Indianapolis.—p. 317.
Mexican Trades and Crafts. I. Mertice M. C. B. Knox.—p. 339.
Training for Occupational Therapists at Sheppard and Enoch Pratt Hospital. Mrs. Marshall L. Price.—p. 339.
Museum Meanderings: X. Biltmore House, Asheville, N. C. W. R. Dunton, Jr.—p. 343.

Public Health Reports, Washington, D. C.

46: 2357-2413 (Oct. 2) 1931

Present-Day Problems of Yellow Fever. H. S. Cumming.—p. 2361.

46: 2415-2479 (Oct. 9) 1931

Experimental Transmission of Endemic Typhus Fever of United States by Rat Flea (Xenopsylla Cheopis). R. E. Dyer, E. T. Ceder, A. Rumreich and L. F. Badger.—p. 2415.
Agglutinin Absorption in Undulant Fever (Brucellosis). E. Francis. —p. 2416.
Double Infection by Organisms of Brucella Group: Case. C. F. Jordan and I. H. Borts.—p. 2437.

Rhode Island Medical Journal, Providence

14: 151-168 (Oct.) 1931

*Electric Ionization in Otorhinology. G. J. McCurdy, Providence.—p. 151.
Diagnosis of Hyperthyroidism. F. E. McEvoy, Providence.—p. 154.

Southern Medical Journal, Birmingham, Ala.

24: 837-932 (Oct.) 1931

Wounds and Their Treatment. H. A. Royster, Raleigh, N. C.—p. 837.
Plan of Flap Cutting in Amputation of Female Breast, Designed for Purpose of Preserving Free Range of Arm Motion and Avoiding Skin-Grafting. G. H. Noble, Atlanta, Ga.—p. 841.
Syphilis of Stomach: Report of Seven Cases. S. Harris, Jr., and J. B. Youmans, Nashville, Tenn.—p. 847.
Tularemic Peritonitis: Report of Case Observed for Four Years. M. J. Kilbury and S. C. Fulmer, Little Rock, Ark.—p. 856.
Chronic Exfoliative Dermatitis. J. R. Allison, Columbia, S. C.—p. 860.
Safety Pin in Duodenum: Case. L. W. Long, Jackson, Miss.—p. 866.
Description of Carrier for Spinal Anesthesia Patients. H. A. Gamble, Greenville, Miss.—p. 867.
End-Results in Roentgen-Ray Treatment of Acne Vulgaris: Study of 247 Cases. L. W. Lord and J. E. Kemp, Baltimore.—p. 867.
Vitamin G in Root and Leaf Vegetables. P. L. Day, Little Rock, Ark. —p. 876.
Observations on Use of B C G Vaccine in Nashville, Tenn. J. Overton, Nashville, Tenn.—p. 878.
Eustachian Tube: Its Relation to Nasopharyngeal and Middle Ear Diseases. E. G. Breeding, Washington, D. C.—p. 882.
Radiotherapy in Uterine Fibroids. J. W. Landham, Atlanta, Ga.—p. 885.
Suprapubic Prostatectomy. G. R. Livermore, Memphis.—p. 888.
Play for Attention, a Key to Mental Prophylaxis. W. W. Young, Atlanta, Ga.—p. 892.
Trachoma Problem. P. D. Mossman, *Albuquerque, N. M.—p. 894.*
Public Health in Tri-State Area and Its Handicaps. F. P. Helm, Miami, Okla.—p. 898.
Levels of Nursing: Practical Nurse, Trained Nurse, Specialized Nurse, *and Their Relations to Economics of Illness.* C. T. Stone, Galveston, Texas.—p. 902.
Preparatory and Technical Education of the Nurse. Jane van de Vrede, Atlanta, Ga.—p. 907.
Importance of Dental Clinic in Dispensary. F. C. Elliott, Memphis, Tenn.—p. 912.
Correlation of Medical and Dental Education. J. T. O'Rourke, Louisville, Ky.—p. 916.

Surgery, Gynecology and Obstetrics, Chicago

53: 433-592 (Oct.) 1931

*Róle of Pancreatic Juice in Production of Gallbladder Disease. J. A. Wolfer, Chicago.—p. 433.
*Incidence of Gallstones and Gallbladder Disease. C. Crump, Mount McGregor, N. Y.—p. 447.
*Chronic Inflammation of Salivary Glands With or Without Calculi. G. B. New and F. R. Harper, Rochester, Minn.—p. 456.
*Roentgenographic Diagnosis of Diseases of Breast. P. S. Seabold, Philadelphia.—p. 461.
Malignant Changes Occurring in Benign Giant Cell Tumors of Bone. C. C. Simmons, Boston.—p. 469.
Persistent Bronchial Fistula: Experimental Production and Method of Treatment. W. E. Adams and H. M. Livingstone, Chicago.—p. 479.
Aschheim-Zondek Pregnancy Reaction: Report Based on Two Thousand Controlled Aschheim-Zondek Pregnancy Tests. K. Ehrhardt, Frankfurt-on-the-Main, Germany.—p. 486.
Surgical Approach and Treatment of Tumors and Other Lesions About Optic Chiasm. G. J. Heuer, Cincinnati.—p. 489.
Steps Toward Standardization of Perineal Prostatectomy. F. Hinman, San Francisco.—p. 519.
Surgical Treatment and Management of Pharyngo-Esophageal Diverticulum. A. E. McEvers, Rock Island.—p. 525.
Cancer of Lip: Report of Eighty-Eight Cases from Steiner Clinic. C. B. Stewart, Atlanta, Ga.—p. 533.
Roentgenologic Pelvimetry and Intra-Uterine Cephalometry. H. J. Walton, Baltimore.—p. 536.
Superficial and Deep Continuous Suture. J. Sarnoff, Brooklyn.—p. 539.
Suspension of Uterus: Modification of Technic. R. W. Lagersen, Minneapolis.—p. 545.
One Hundred and Seventeen Consecutive Cervical Cesarean Sections Without Maternal Mortality. J. P. Greenhill, Chicago.—p. 547.

Pancreatic Juice in Production of Gallbladder Disease.—Wolfer states that in the dog, when pancreatic juice is conveyed into the terminal end of the common duct, it can find its way into the gallbladder. In all cases in which pancreatic juice was introduced into the gallbladder of the dog, there followed unmistakable pathologic changes in the wall of the gallbladder. It was shown by the author that in the dog if pancreatic juice was introduced into the common duct for a short period of time there followed a typical pathologic picture of chronic cholecystitis which was definitely present 186 days later. By analogy it is reasoned that in the human being, owing to a continuous pathway between the pancreatic and the bile ducts, in a variable percentage of cases it is possible for pancreatic juice to enter the gallbladder and produce pathologic changes.

Incidence of Gallstones and Gallbladder Disease.—Crump reports the results of a study of the material from 1,000 routine necropsies at the City Hospital in Vienna. In

Tennessee State Medical Assn. Journal, Nashville

24: 365-406 (Oct.) 1931

Treatment of Varicose Veins and Ulcers by Sclerosing Solutions and Unna's Boot. E. T. Newell, Chattanooga.—p. 365.
Surgical Treatment of Detachment of Retina. E. C. Ellett and R. O. Rychener, Memphis.—p. 371.
Treatment of Leukorrhea. J. C. Burch, Nashville.—p. 377.
Coronary Thrombosis. O. N. Bryan, Nashville.—p. 382.
A Romance of Paternalism. W. F. Donaldson, Pittsburgh.—p. 387.
Treatment of Fibroid Tumors of Uterus with Analysis of Three Hundred and Eighteen Cases. W. C. Dixon, Nashville.—p. 390.

Texas State Journal of Medicine, Fort Worth

27: 417-480 (Oct.) 1931

Epithelioma of Eyelid. C. F. Lehmann, San Antonio.—p. 422.
Intracapsular Cataract Extraction. R. K. Daily and L. Daily, Houston.—p. 426.
Demonstration of Hormones in Urine of Pregnancy. Martha A. Wood, Houston.—p. 431.
Roentgen Ray as Adjunct in Diagnosis of Pregnancy. W. G. McDeed, Houston.—p. 434.
New Oxygen Therapy Apparatus. T. A. Taylor, Lufkin.—p. 436.
Eugenic Sterilization. O. L. Norsworthy, San Antonio.—p. 438.
Angioneurotic Edema. S. T. Wier, Beaumont.—p. 444.
Prevention of Congenital Syphilis. W. Clarke, New York.—p. 447.
Use of Belladonna and Ovarian Preparations in Treatment of Ureteral Pathologic Conditions. R. E. Van Duzen, Dallas.—p. 453.
Acute Peritonitis: Various Causes, Diagnosis and Treatment. C. W. Flynn, Dallas.—p. 456.
Bladder Neck Obstruction. J. R. Caulk, St. Louis.—p. 459.

Western J. Surg., Obst, & Gynecology, Portland, Ore.

39: 729-808 (Oct.) 1931

Preliminary Report of Occurrence of Phymatorhusin and Its Prophase in Urine as Test Indicative of Malignancy. L. C. A. Haffner, San Francisco, and Winfred H. Bueermann, Portland.—p. 741.
*Carcinoma of Uterine Cornu and Interstitial Portion of Fallopian Tube: Case. W. C. Hunter and W. B. Holden, Portland.—p. 746
*Ophthalmologic Symptoms Associated with Intracranial Injuries. F. A. Plum, Honolulu, T. H.—p. 754.
Newer Methods of Thiersch Grafting. W. S. Kiskadden, Los Angeles.—p. 758.
Meningitis in the New-Born, Simulating Intracranial Hemorrhage. M. L. Bridgeman, Portland.—p. 763.
Studies in Etiology and Nature of Simple Goiter as Produced Experimentally in Rabbits. B. Webster, New York.—p. 765.
A Clinical and Pathologic Study of Carcinomatous Gastric Ulcer, with Particular Reference to Grading of Malignancy. W. H. Bueermann, Portland.—p. 774.
Suppurative Labyrinthitis: Case, Pathologic Findings. E. F. Ziegelman, San Francisco.—p. 785.

Carcinoma of Uterine Cornu.—Hunter and Holden report a case of papillary adenocarcinoma occurring in the uterus of a woman, aged 30, giving a history of menorrhagia almost continuously since the onset of the menses, relieved temporarily on three occasions by curettage, but always recurring with increasing severity. On the last admission to the hospital, the symptoms closely simulated those of incomplete abortion but microscopic examination of the material evacuated from the uterus revealed adenocarcinoma. The extirpated uterus was found to contain a papillary carcinoma situated so far laterally in one cornu that it escaped the curet and was found only by making many cuts at close intervals. Microscopic serial sections were necessary to determine whether the growth arose from tubal or endometrial epithelium. The latter proved to be the origin of the neoplasm in what was in all probability at one time a benign polypus. Pressure by surrounding muscle molded the growth, preventing centrifugal extension in all directions, except into the cavum uteri. An entirely parallel instance was not found in the available literature.

Ophthalmologic Symptoms in Intracranial Injuries.—Plum enumerates the ophthalmologic symptoms associated with intracranial injuries thus: A circumorbital ecchymosis is important. Sudden complete loss of vision in one eye following trauma may mean a fracture through the optic foramen. A dilated pupil usually means a lesion on that side. A complete third nerve paralysis means a basal lesion and is a bad sign. A contracted pupil may mean sympathetic paralysis. Early eyeground changes are represented by engorgement of the veins, and a choked disk is a late symptom. Visual field studies are of great value. Disassociated ocular movements mean pathologic changes in the anterior part of the aqueduct of Sylvius. A destructive lesion may be differentiated from an irritative lesion by the action of the ocular muscles.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Pickett-Thomson Research Lab., London

7: 1-441 (July) 1931

Rôle of Streptococci in Erysipelas. D. Thomson and R. Thomson.—p. 1.
Historical Survey of Researches on Rôle of Streptococci in Skin Diseases. D. Thomson and R. Thomson.—p. 111.
Rôle of Streptococci in Measles. D. Thomson and R. Thomson.—p. 191.

Brain, London

54: 247-376 (Sept.) 1931

*Experimental Production and Prevention of Degeneration in Spinal Cord. E. Mellanby.—p. 247.
Lesions of Central Nervous System Characteristic of Pellagra. O. R. Langworthy.—p. 291.
Equilibrium Between Cerebrospinal Fluid and Blood Plasma: V. Osmotic Pressure (Freezing Point Depression) of Human Cerebrospinal Fluid and Blood Serum. R. Fremont-Smith, G. W. Thomas, Mary Elizabeth Dailey and Margaret P. Carroll.—p. 303.
Parathyroid Tetany in Dogs, and Its Abolition by Curare. H. Hartridge and R. West.—p. 312.
On Posture and Postural Reflex Action: Effect of Unilateral Lumbar Sympathetic Chain Extirpation. G. Phillips.—p. 320.
Two Cases of Oligodendroglioma: Remarks on General Clinical Features of Such Cases. J. P. Martin.—p. 330.
Cutaneous Tactile Localization. E. A. B. Pritchard.—p. 350.

Degeneration in Spinal Cord.—Mellanby noted that when diets containing a large amount of cereal (other than yellow maize) and deficient in vitamin A or carotene are eaten by young puppies, degenerative changes in the spinal cord in the form of demyelination of the nerve fibers, which can be readily observed by Marchi's method of staining, can generally be observed. The addition to the diet of from 2 to 5 Gm. of ergot daily under these conditions hastens and intensifies these degenerative changes. Rye germ also hastens the changes and in some experiments wheat germ has been found to have a similar but less pronounced effect. The presence in the diet of any rich source of vitamin A such as liver oil (mammalian or fish), whole milk, butter or egg yolk or some source of carotene such as green vegetables or carrots, or carotene itself, prevents or diminishes these degenerative changes even when ergot is eaten. Spinal cord degeneration of this type does not seem to develop until the reserves of vitamin A in the liver are dispersed. Since these stores may be very large in well fed animals, the time of onset of the symptoms of spasticity, incoordination and weakness varies greatly in different litters of animals. In the case of ergot, the changes are seen usually after from two to four months on the diet. Not only do vitamin A and carotene prevent the degenerative changes, but even in affected animals there is great improvement in the clinical condition on the addition of either of these substances to the diet. The possible bearing of these results on convulsive ergotism, pellagra, lathyrism and the subacute combined degeneration in pernicious anemia, tabes dorsalis, multiple sclerosis and even on the malarial treatment of nervous syphilis is discussed.

British Journal of Ophthalmology, London

15: 545-608 (Oct.) 1931

Device for Accurate Localization of Holes in Retinal Detachments. R. F. Moore.—p. 545.
*Contact Glasses. A. Rugg-Gunn.—p. 549.
Ophthalmomanometry. W. S. Duke-Elder, P. M. Duke-Elder and J. C. Colle.—p. 575.
Case of Dermofibrolipoma of Conjunctiva Associated with Other Congenital Abnormalities. H. B. Stallard and P. P. Martin.—p. 580.
Scleritis as Sequela of Herpes Ophthalmicus. G. G. Penman.—p. 585.
Neutralization in Dynamic Retinoscopy. J. I. Pascal.—p. 589.

Contact Glasses.—Rugg-Gunn states that at present contact glasses are a novelty. A good many at present undoubtedly find something rather repulsive in the idea of inserting a glass in the eye. There is the fear of discomfort and the fear that it is not safe. The latter is unjustified. A contact glass, owing to its position in the orbit, is well protected from injury, much better than a spectacle lens. Should one be broken in situ, the risk of penetrating the cornea is small. An illustration will make this clear. If a thin cover glass, such as is used for microscopic slides, is placed on the back of the hand

and tonsillitis were the most frequent antecedent infections. Loss of weight occurs in proportion to the duration rather than the severity of the symptoms. Growth in height is not affected by the disease. Long-continued hyperthyroidism is an important factor in the causation of auricular fibrillation. Constipation occurs more frequently than diarrhea in hyperthyroidism, but the activity of the bowels is found to be increased when compared with a series of controls. In "potential hyperthyroid persons" the age at which menstruation commences does not show any significant variation from the normal.

Irish Journal of Medical Science, Dublin

69: 483-534 (Sept.) 1931

Endocrine Physiology. E. Sharpey-Schafer.—p. 483.
*Ketogenic Treatment of Epilepsy. C. Bastible.—p. 506.

Ketogenic Treatment of Epilepsy.—Twenty-nine adult females suffering from what was described in all cases as "epileptic insanity" were started on a ketogenic diet by Bastible in November, 1929. Most of the patients had epilepsy of the grand mal type and many had both grand and petit mal. The treatment was continued for a period of six months. In twenty of the cases, a reduction in the number of seizures took place over a period of six months. In two of the cases, after the first month of treatment there was a complete cessation of seizures for the remaining period during which they were under observation. The addition of acid salts to the diet in the last two months of treatment, combined with some restriction of fluid intake, seemed to have a definite beneficial effect in still further reducing the number of seizures. Four of the patients showed a substantial increase in the number of seizures occurring while they were on treatment, as compared with the number before treatment. In those four cases, however, there was evidence of organic degeneration of the brain. Several interruptions of ketonuria occurred in a number of the cases, and there was a definite increase in the number of seizures when ketones were absent from the urine. The number of patients treated, and the period during which they were under treatment, are too limited to permit one to draw any definite conclusions as to the value of the ketogenic diet in adult epilepsy, but the results seem to indicate that the treatment is at least worth while, since all other therapeutic measures not alone give bad results but in many cases cause definite organic degenerative changes to occur or to increase.

Medical Journal of Australia, Sydney

2: 375-404 (Sept. 26) 1931

Angina Pectoris and Coronary Occlusion. C. B. Blackburn.—p. 375.
Use of Packing in Postoperative Treatment of Some Nasal Operations and a Few Aural Operations. J. J. Woodburn.—p. 390.

South Africa M. Assn. Journal, Cape Town

5: 549-584 (Sept. 12) 1931

Technical and Administrative Dilettantism in Public Health. N. H. Swellengrebel.—p. 551.
Traumatic Fat Necrosis of Breast. J. J. Levin.—p. 552.
Medical Services for Rural Areas. A. Hay-Michel.—p. 555.
Technic of Intravenous Saline. M. C. Rous.—p. 558.
History of Congress. C. L. Leipoldt.—p. 561.
Johannesburg's Medical Congresses, in Retrospect and Prospect. W. A. J. Cameron.—p. 566.

Tubercle, London

13: 1-48 (Oct.) 1931

Future of Artificial Pneumothorax Treatment from Administrative Point of View. N. Tattersall.—p. 1.
Future of Artificial Pneumothorax Treatment. L. T. S. Burrell.—p. 4.
Experiments on Filtrable Phase in Life History of Tubercle Bacillus. R. R. Mellon.—p. 10.

Journal of Oriental Medicine, South Manchuria

15: 35-50 (Sept.) 1931

Collateral Respiration. Its Demonstration, Its Nature and Its Function: II. Occurrence of Collateral Respiration Between Pulmonary Lobules. C. M. Van Allen.—p. 35.
Emissary Veins of Cranial Bones in Chinese. S. C. Tung.—p. 46.
Induration at Urinary Tract of Penis. H. T. Huang.—p. 48.
Electrocardiogram of Infant's Rachitis. N. Hoshi.—p. 49.
Electrocardiogram of Children's Myxedema. N. Hoshi.—p. 49.
Electrocardiogram of Children's Beriberi. R. Sasaki and N. Hoshi.—p. 50.

Annales de l'Institut Pasteur, Paris

48: 221-338 (Sept.) 1931

*Experimental Researches on Reciprocal Effects of B C G and Concomitant Infection with Pseudotuberculosis Bacteria and Streptococci. A. Saenz.—p. 221.
Subcutaneous Antituberculosis Immunization: Tests with B C G in Algeria. H. Foley, L. Parrot, L. Céard and S. Champouillon.—p. 245.
*Seroprophylaxis and Serotherapy in Tetanus. S. Mutermilch and E. Salamon.—p. 277.
Bacillus in Testing Presence of Rhamnose. A. Castellani.—p. 297.
Value of Intradermal Reaction in Diagnosis of Undulant Fever. C. Dubois and N. Sollier.—p. 311.
Chemical Nature of Substance Causing Anaphylaxis. M. M. Desplanques, Simonnet and Verge.—p. 332.

Effects of B C G and Concomitant Infection with Pseudotuberculosis Bacteria and Streptococci.—Saenz, who believes his experiments oppose the results of other workers, concludes that neither the lymphatic infection produced by the pseudotuberculosis bacillus (Preisz-Nocard) nor the acute, chronic, local or general infection, provoked by Streptococcus caviae, modifies the pathogenic properties of B C G inoculated previously, simultaneously or ulteriorly through the same or different routes. The lesions that result when B C G is injected into guinea-pigs infected with the pseudotuberculosis bacillus or streptococci do not differ in any way from lesions in normal guinea-pigs. When tissues injured by B C G are reinoculated in series from guinea-pig to guinea-pig, the bacilli that they contain decrease in number after the second passage and disappear after the third. The streptococcic infection is not modified by a massive intraperitoneal inoculation of B C G injected after a subcutaneous or intraperitoneal inoculation of Streptococcus caviae. The streptococcic infection develops more rapidly when the B C G is inoculated intraperitoneally and at the same time as the streptococcus; on the other hand, a previous intraperitoneal inoculation of a massive dose of B C G protects the guinea-pig appreciably against a weak streptococcic infection.

Seroprophylaxis and Serotherapy in Tetanus.—Mutermilch and Salamon agree with the notion that the failures in subcutaneous and intravenous antitetanus serotherapy may be attributed to the fact that there is no penetration into the nervous system. Experiments prove that both toxin and antitoxin are absorbed by the cerebral tissue. Cutaneous or intravenous injections reach only part of the toxin lodged in the injured skin or general circulation but do not reach the toxin fixed by the nervous tissue. They recommend the incorporation of anatoxin and antitoxin administered through the subarachnoid route. There is immediate neutralization of toxin and at the same time the setting up of an active and rapid immunization. Intraspinal injections of 0.5 cc. of anatoxin cause no inconvenience in animals or in man. The authors suggest that the serum-anatoxin mixture be administered under chloroform anesthesia, since, according to another worker, serum injections are more effective under anesthesia than without anesthesia.

Archives de Médecine des Enfants, Paris

34: 581-644 (Oct.) 1931

*Medicosurgical Study of Perforations of Gallbladder in Typhoid of Children. R. Liège and A. Folliasson.—p. 581.

Perforation of Gallbladder in Typhoid of Children.—In the course of their study, Liège and Folliasson describe a case from their own experience and fourteen other cases gathered from the literature and summarize their observations as follows: Perforation of the gallbladder in the course of typhoid in the child is infrequent. The symptoms are sometimes mistaken for intestinal perforation—this diagnosis is rectified only by a systematic exploration of the biliary tract; and, again, clinical indications may show the existence of a cholecystitis with perforation. In the first case, the diagnosis is particularly delicate. Diagnosis is assisted by localization of the initial pain and contraction and the knowledge that the period of latency and peritoneal tolerance is longer in case of perforation of the gallbladder than in case of intestinal perforation. Without operation the mortality is 100 per cent, but surgical intervention, even late, leads to recovery in 66⅔ per cent of the cases. Cholecystostomy is the operation of choice; cholecystectomy is a more delicate and longer operation and the authors consider that it is contraindicated. Cholecystectomy does not prevent a or secondarily, infection are involved, whereas in the etiology of the nasopharyngeal lesion the factor of infection is to be excluded or takes on secondary importance, being replaced by the primarily toxic disturbance of intestinal origin.

Archivos de Medicina Cirugía y Espec., Madrid

34: 797-816 (Aug. 29) 1931. Partial Index

*Treatment of Ulcers of Stomach by Injections of Pepsin. P. Buylla, C. Parreño and P. Coronado.—p. 804.

Treatment of Ulcers of Stomach by Injections of Pepsin.—Loeper's method of treatment for ulcers of the stomach by means of intramuscular injections of a solution of pepsin to which sodium benzoate is added, to remove the acidity and causticity of the pepsin, was described in the *Presse médicale* (**38:**1465 [Oct. 29] 1930; abstr. The Journal, January 10, p. 148). Buylla and his collaborators have used this treatment successfully in thirty patients with various kinds of gastric and duodenal ulcers. The curative effects of the treatment were excellent in all thirty cases in which it was employed, a complete clinical cure being obtained with one or two series of injections. The gastric acidity decreased in fourteen patients of the entire group; in six it increased and in ten it was not modified. Out of the entire group, only one patient presented a generalized erythema as a reaction and in one of them the intestinal pain, to which Loeper made a reference, was present. The solution of pepsin and sodium benzoate to be used should be freshly prepared since it soon loses its activity. The hypothesis of Loeper that the curative effect of pepsin is due to hypersensitization to pepsin that exists in persons with ulcer and hyperchlorhydria is problematic, for the authors believe rather that several factors (the principal of which would be a trophic action of pepsin, coming next in importance an activation of the cellular processes of healing and also probably a vagotonic action of pepsin) are responsible for the curative results. Though the cause of this effect of pepsin is not as yet determined, the practical results clearly indicate that the injections of pepsin according to Loeper's method have a manifest curative action on gastric and duodenal ulcers.

Archiv für Verdauungs-Krankheiten, Berlin

50: 1-144 (Aug.) 1931

Rhodan Content and Bactericidal Action of Human Gastric Juice. G. Lockemann and W. Ulrich.—p. 7.

*New Apparatus for Endoscopic Photography of Gastric Mucous Membrane. N. Henning.—p. 27.

Decomposition of Blood Pigment in Gastro-Intestinal Tract of Healthy Persons. F. Haurowitz.—p. 33.

Experimental Investigations on Influence of Various Types of Bread on Motor Function of Human Digestive Tract. A. Bickel and F. Fleischer.—p. 47.

Clinical Observations on Primary Ptosis of Stomach. O. J. Vandorfy.—p. 60.

Clinical Characteristics of Hepatargy. J. Lipez and J. Schapiro.—p. 70.

Influence of Wildungen and Fachingen Waters on Acid-Base Equilibrium in Urine. Claudia Keppel.—p. 82.

Diagnosis of Pancreatic Disturbances. M. M. Gubergritz.—p. 89.

Diet in Cholelithiasis and Pathogenesis of Biliary Colic. G. Hetényi.—p. 106.

Modification of Blood Sugar Curve by Oral Administration of Insulin. J. Seide.—p. 112.

New Apparatus for Endoscopic Photography of Gastric Mucous Membrane.—According to Henning it is possible to make a photographic record of the gastric mucous membrane by one of two methods, either by introducing a special camera into the stomach or by recording on a photographic plate the reflected image obtained by the gastroscope. The introduction of a camera into the stomach was described by Heilpern and Porges in the *Klinische Wochenschrift* (**9:**15 [Jan. 4] 1930; abstr. The Journal, March 8, 1930, p. 754). Elsner first attempted to attach a camera to the gastroscope, but since the apparatus had shortcomings the author modified and perfected it. He gives a detailed description of his apparatus, reports how he employed it and also gives reproductions of pictures obtained with it. In the last part of the article he emphasizes the advantages of this method. With its aid it is possible to make a photographic record of the gastroscopic observations. This eliminates the necessity of making sketches, which method requires more time and is generally less correct than a photograph.

Beiträge zur Klinik der Tuberkulose, Berlin

78: 243-350 (Aug. 20) 1931

Distribution of Main Forms of Tuberculosis as Observed on Necropsy Material of Pathologic Institute in Heidelberg. H. Rudel.—p. 243.

Influence of B C G Vaccination on Blood and Attempts to Effect Increase in Virulence of B C G by Experimental Injury of Test Animals (Macacus Rhesus). A. Nohlen and M. Sarvan.—p. 250.

*Modification of Experimental Tuberculosis of Guinea-Pigs by Means of Vitamin D. H. Theiss.—p. 264.

Acute Miliary Tuberculosis. K. Thums.—p. 273.

*Calcium Therapy of Pulmonary Tuberculosis. H. G. Scholtz.—p. 283.

Thalassotherapy in Intrathoracic Tuberculosis of Children. G. Herholz.—p. 287.

Pathologic Changes in Artificial Pneumothorax. I. Steiger.—p. 304.

Endangiitis Tuberculosa Aortae. J. Haas.—p. 315.

Gold Elimination by Kidneys. H. Döllken.—p. 325.

Blood Pressure, Blood Status and Blood Sedimentation in Dietary Treatment of Tuberculosis According to Gerson-Sauerbruch-Herrmannsdorfer. J. Leitner.—p. 331.

Behavior of Secretion of Gastric Juice During Dietary Treatment of Tuberculosis According to Gerson-Sauerbruch-Herrmannsdorfer. J. Leitner.—p. 337.

Determination of Phagocytic Capacity of Leukocytes in Tuberculosis. G. Platonow.—p. 347.

Modification of Experimental Tuberculosis by Means of Vitamin D.—Theiss investigated whether the development of experimental tuberculosis could be inhibited or arrested in its further progress by medication with vitamin D. In his experiments vitamin D checked the progress of experimental tuberculosis in guinea-pigs. Whether the favorable results were due to the fact that accidentally the right proportion was found between the virulence and the quantity of the bacilli, on the one hand, and the dose of vitamin D on the other, or whether it will always be possible to influence experimental tuberculosis of guinea-pigs with small doses of vitamin D has to be determined in future experiments. To infer merely from the success of his experiments that vitamin D should be effective in the treatment of human tuberculosis would be, according to the author, premature.

Calcium Therapy of Pulmonary Tuberculosis.—Reports about favorable results of calcium therapy in patients with pulmonary tuberculosis induced Scholtz to try this treatment on twenty-two patients with fresh exudative processes. Every second day the patients were given an intramuscular injection of 10 cc. of a 10 per cent solution of calcium gluconate. The author realizes that it is difficult to judge the therapeutic value of a treatment in patients with a fresh tuberculous process, since in many cases rest alone will effect considerable improvement. Nevertheless, on the basis of his observations he is convinced that medication with calcium exerts a marked influence on the exudation, for in 80 per cent of the patients with large quantities of sputum the expectoration decreased rapidly. Daily quantities of from 70 to 100 cc. of sputum were reduced to from 5 to 10 cc. The temperature likewise showed a marked reduction in many cases, but here the influence of the calcium therapy was not as convincing as in the case of the sputum. The sedimentation speed of the erythrocytes was not manifestly influenced by the calcium therapy, nor did roentgenoscopy reveal improvement in the pulmonary process; but some of the patients thought that the calcium medication improved their general condition. In many patients the night sweats were reduced. In three patients the calcium therapy did not exert any influence whatever. In the second part of the article the author reports his investigations on the mechanism of calcium therapy. Analysis of the blood on the days between those on which calcium was administered revealed that the calcium content was always somewhat increased, but the author does not agree with those who maintain that calcium deposits form in the pulmonary parenchyma, for he points out that necrotic tissues always have the tendency to absorb calcium. Experiments on rabbits revealed that parenteral administration of calcium does not increase the normal calcium content of the lung. Only the calcium content of the skin and of the muscles showed a slight increase. The influence of the calcium therapy on pulmonary tuberculosis is not due to a direct action on the diseased organ but rather to those qualities of the calcium that make the vessels less permeable and check inflammatory processes. Also, the calcium probably exerts its influence by way of the sympathetic nervous system and modifies the mineral metabolism, for it has been found that especially in chronic forms of tuberculosis the calcium content of the blood is usually considerably reduced.

and those who were already free from fever. The colloid-osmotic pressure did not always go parallel with the quantity and the composition of the protein in the serum. The question of water retention during fever cannot be decided on the basis of these observations, since the significance of colloid-osmotic pressure for water retention is not fully understood. It was found that the sedimentation speed of erythrocytes was not influenced by the increase in globulin.

Sedimentation Speed and Rheumatic Diseases.—On the basis of reports in the literature and of her own investigations, von Balden shows the essential relations between the erythrocyte sedimentation speed and the diseases of the motor apparatus. The sedimentation reaction is of greatest significance for the prognosis. However, a too hasty evaluation of the sedimentation curve may lead to erroneous conclusions. The author emphasizes the necessity of serial tests, the continuous control of the sedimentation speed during the entire course of the disease.

Changes in Electrocardiogram of Human Beings Under Influence of Tobacco Smoke.—After calling attention to their former investigation on the influence of nicotine on the electrocardiogram of rabbits, Ssalischtscheff and Tschernogoroff report tests on thirteen healthy persons, of whom nine were nonsmokers and four were habitual smokers. On an empty stomach these persons smoked cigars or cigarets until signs of intoxication became manifest. Before and at regular intervals during the experiment, electrocardiographic and sphygmographic tests were made. The results of these tests are shown in tables and in reproductions of a number of electrocardiograms. On the basis of their observations the authors reach the following conclusions: 1. The tachycardia that results from intoxication with tobacco smoke represents the cardinal symptom of a generalized irritation of the sympathetic nervous system. 2. The retardation of the rhythm at the height of the intoxication manifestations, and the sino-auricular block, which is of vagal origin, are signs of the vagotropic action of nicotine, but they were detected in only a few of the cases. 3. The form and the height of the electrocardiographic deflections remained unchanged in the majority of cases. 4. The increased systolic index is an indication that the function of the myocardium is impaired. 5. The changes in the sphygmogram that are observed during smoking are the result of a decreased tonus of the larger arteries; as accompanying manifestation there develops a contraction of the small peripheral arteries with a simultaneous increase in the systolic blood pressure.

Reticulocytes (Erythrocytes Under Vital Staining) and Water Content of Blood.—Tests on eighteen persons convinced Fischer that a relationship exists between the water content and the percentage of reticulocytes in the circulating blood. When the water content increases, that is, when the blood becomes thinner, the reticulocytes also increase, in the healthy organism and under physiologic conditions as well as in the diseased organism and under the influence of medicaments.

Reactions of Blood Vessels Under Influence of Illuminating Gas.—Abe points out that there are various theories that attempt to explain the mechanism of softening of the brain in carbon monoxide poisoning. Most authors are inclined to consider vasodilatation resulting from vasomotor paralysis as the cause. However, the author is convinced that the anatomic changes detected during the postmortem examination do not explain the entire course of the changes but represent only the last phase. In order to gain a better understanding of the entire process he made biologic experiments on frogs and rabbits. He describes the technic and thus sums up the results of his tests: The illuminating gas exerts its influence on the peripheral vasoconstrictor nerves. A small quantity of gas first stimulates the peripheral vasoconstrictor nerves and effects a contraction of the vessels. A large quantity of gas or prolonged exposure to its influence effects paralysis of the peripheral vasomotor nerves and the vessels become dilated. A slight diversity in the influence of gas on frogs and on rabbits is probably due to the difference in the susceptibility of cold-blooded and warm-blooded animals. These tests throw light on the mechanism of acute carbon monoxide poisoning in that they explain the significance of the contraction of the cerebral vessels, by which softening of the brain is effected. The author considers the vasodilatation of only secondary significance.

Zeitschrift f. d. ges. Neurol. u. Psychiatrie, Berlin

135: 1-322 (Aug. 7) 1931

*Sweat Secretion in Human Beings in Its Relations to Nervous System. L. Guttmann.—p. 1.
Stabilization of Body Posture. J. W. Hultkrantz.—p. 49.
*Stupor in Circular and Schizophrenic Psychoses. K. H. Langenstrass and Ethel Friedman-Buchman.—p. 83.
Multiple Confluent Sclerosis of Medullary Layer in Monkeys, Combined with Systemic Disease of Optic Nerve as Well as of Posterior Roots and Posterior Columns. F. Schob.—p. 95.
Clinical Aspects and Histopathology of Pick's Cerebral Atrophy. M. Liebers.—p. 131.
*Gasanalytic Investigations on Cerebrospinal Fluid of Patients with Nervous Disorders (Alkali Reserve). A. E. Kulkow and M. E. Tarnopolskaja.—p. 143.
*Cerebral Changes Following Alcohol Abuse (with Consideration of Several Cases of Acute Hemorrhagic Poliencephalitis of Different Origin). K. *Neubürger.—p. 158.*
Functional Genetic Analysis of Cerebrospinal Fluid. V. Kafka.—p. 210.
Investigations on Heredity in Feebleminded Children. W. Pleger.—p. 225.
Silver Impregnation in Demonstration of Neuroglia: Its Results. M. Bielschowsky.—p. 253.
Epinephrine Probe Test in Localization of Cerebral Tumor. O. Muck.—p. 279.
Simon and Hinrichsen: Comparative Study of the Two Psychiatrists. A. Paunez.—p. 282.
Schizophrenic Psychoses with Identical Course in Binovular Twins. J. Jacobi.—p. 298.
*Left-Handedness and Heredity. A. Schott.—p. 305.
Deviation to Left in Blood Picture of Schizophrenic Patients. R. Carrière.—p. 314.
Therapy of Schizophrenia. L. Wolfer.—p. 321.

Sweat Secretion in Human Beings in Its Relations to Nervous System.—In his comprehensive article Guttmann first gives a short history of the investigations on sweat secretion and mentions workers who have made important contributions in this field. He states that, although it has long been acknowledged that the action of the sweat glands is under direct nervous influence, the mechanism of correlation between the sweat glands and the nervous system is still not fully understood. The question which is at present the focus of interest is that of the double or antagonistic innervation of the sweat glands by the sympathetic and parasympathetic nerves. In spite of the fact that the antagonistic action of the sympathetic and parasympathetic nerves is generally accepted with regard to the internal organs, it is still not entirely understood in the case of the organs of the skin: the sweat glands, the sebaceous glands and the pilomotor nerves. The author enumerates the difficulties in the investigations on the innervation of the sweat glands and describes the methods which he employed in his studies, especially the use of pharmaceutic preparations. Further, the individual variations in the normal sweat fields are discussed and then follows a discourse on the relations between sweat secretion and the various parts of the nervous system; namely, the peripheral nerves, the anterior and posterior roots, the spinal sweat centers, the medulla oblongata, the midbrain and the cerebral cortex.

Stupor in Circular and Schizophrenic Psychoses.—Langenstrass and Friedman-Buchman describe three methods for the active treatment of stupor reactions in functional psychoses; namely, pyretotherapy, psychotherapy and inhalation of carbon dioxide. They give the clinical histories of four patients in whom permanent results were obtained. Details of the treatments and the action mechanisms are discussed, and suggestions are made for further development and for application in other conditions.

Gasanalytic Investigations on Cerebrospinal Fluid of Patients with Nervous Disorders.—Kulkow and Tarnopolskaja found that the carbon dioxide content or the alkali reserve of the cerebrospinal fluid varies in the various nervous disorders. The greatest carbon dioxide content of the cerebrospinal fluid was observed in cases of dementia paralytica and of genuine epilepsy and also in chronic alcoholism (alkalosis). A marked acidosis (greatest carbon *dioxide content)* was observed in meningitis; then followed in ascending order the toxic forms (cases of poisoning), the diffuse disorders of the brain, encephalitis, multiple sclerosis and symptomatic epilepsy. A normal condition of the cerebrospinal fluid was observed in patients with tumors of the brain or of the spinal cord and in those with tabes dorsalis. In cerebrospinal syphilis, *slight fluctuations toward the alkalotic side were noted.*

was smooth and round and contained six round openings, three on each side. The tube was inserted through the nose, from 40 to 50 cc. of warm 33 per cent solution of magnesium sulphate was introduced into the duodenum and after two or three hours from 200 to 500 cc. of duodenal bile was aspirated into a receptacle. The author made the following observations: Aspiration of bile, especially in cases of acute nephritis, quickly modified and relieved the uremic syndrome; the blood urea was markedly decreased (the aspirated bile contained a high concentration of urea); the blood pressure was decreased; the cardiac condition was improved; the aim in regard to the renal system was realized; and the entire clinical picture became favorable. The author admits that his conclusions should be based on much more extensive experimentation.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 4510-4600 (Sept. 5) 1931

Icterus Gravis and Its Treatment. P. Daniels.—p. 4510.
Pyometra with Cancer of Uterus. R. Remmelts.—p. 4520.
*Tuberculosis in Infants. C. de Lange and M. de Bruin.—p. 4528.
Tuberculous Meningitis: Case. P. van Hasselt.—p. 4559.

Tuberculosis in Infants.—De Lange and de Bruin point out that when infants with tuberculosis are put in a hospital for treatment they are often kept there too long. Admission to a hospital for a short observation may be desirable, as it affords an opportunity to determine the nature of the process and the degree of activity. But when that has been ascertained, by far the majority of such children should be no longer kept in a children's clinic but should be transferred at once to a sanatorium. Most hospitals are not so well equipped for open-air and light treatment as are the sanatoriums. Certain examinations or methods of treatment that can be carried out better (or solely) in a hospital need not be considered with respect to tuberculosis in infants. Then, too, the cost of care is higher in the hospital than in the sanatorium. Finally, such children are not entirely without danger for their environment, which is a highly important matter in a children's clinic. It is not true that a young child with tuberculosis who looks well and coughs little, if any, cannot transmit tubercle bacilli in his environment. Tests during recent years have shown that a systematic examination of the stomach contents, fasting, will often reveal the presence of tubercle bacilli in such children.

Norsk Magasin for Lægevidenskapen, Oslo

92: 557-676 (June) 1931

*Hereditary Relations in Cancer Judged by Material Collected by Norwegian Committee on Cancer. G. H. M. Waaler.—p. 557.
*Cancer in Women and Climacterium. F. G. Gade.—p. 593.
*Case of Acute Spondylitis with Epidural Abscess. C. Semb and O. Sundt.—p. 597.
*"Intestinal Polyposis." H. Schilling and O. Berner.—p. 602.
*Cancer ex Ulcere. W. F. Baastad.—p. 614.
*Eczema Due to Suppositories Containing Quinine in Persons Hypersensitive to Quinine. N. Danbolt.—p. 623.

Hereditary Relations in Cancer.—The basis for Waaler's investigations consists of the answers to questionnaires as to the cause of death among the relations, especially the brothers and sisters, husband or wife, and parents, of the approximately 6,000 patients with cancer reported to the Norwegian Committee on Cancer since 1908. The results are united in the following hypothesis: There are two hereditary factors which independently of each other produce a disposition to cancer. Each one of these tendencies to cancer appears with a frequency of about 16 per cent. One anlage is about equally active in men and women; the other is more active in women. Further, cancer not infrequently occurs in men without these factors, far less often in women without them. To what extent these factors are dominant or recessive is uncertain, but recessivity seems more probable. Waaler states that the frequent occurrence of cancer in brothers and sisters and parents of cancer patients, together with the marked variation of the cancer probability in various groups and the similarity in the localization of the cancer in the same group, might be explained as depending on the milieu, but the fact which points most to the significance of heredity is the more frequent occurrence of cancer in brothers and sisters than in the spouse, although the former usually separate in their twenties, often to live under different conditions, while from that age on husband and wife have the same living conditions. Only a material as large as this is believed to suffice to disclose the likelihood of a difference between the incidence of cancer among the brothers and sisters of cancer patients and the incidence in the population in general.

Cancer in Women and the Climacterium.—Gade states that Norwegian cancer statistics from 1924 to 1928, like those from 1919 to 1923, show (1) that cancers of the ovary, uterus and breast have a common mortality maximum about the age of 50 and (2) that the mortality curves for these cancers are almost identical, although the three organs differ in anatomic structure and physiologic function. Similar conditions are revealed in the cancer statistics of England and Wales from 1911 to 1926. The coincidence between the climacterium and cancer of the female organs apparently points to a biologic phenomenon, just as senility of the entire body favors the development of cancer in general.

Case of Acute Spondylitis with Epidural Abscess.—In the patient of Semb and Sundt, a boy aged 10, with onset of general infection without local symptoms, symptoms from the spinal column appeared on the third and fourth days. There was marked pain and pronounced stiffness and tenderness in the back, some stiffness of the neck, and positive Kernig sign, and lumbar puncture gave a thick pus with staphylococci; the cistern punctate was aseptic. The diagnosis of acute osteomyelitis of the spinal column with epidural abscess was confirmed at necropsy.

"Intestinal Polyposis."—Schilling and Berner report two characteristic cases seen in 1929, in men aged 24 and 44, respectively. They state that the tumors (adenomas) appear, usually in adult age, on the basis of an hereditary or familial factor, and that about one half of the patients die from cancer. Their first patient died from cancer metastasis, particularly to the liver; the second did not have cancer. The polypi, as established in their case with cancer, are at the start true adenomas, one or more of which later undergo malignant degeneration and develop into cancer. With regard to the hereditary factor, the authors call attention to the fact that solitary polypi in one of the parents may be followed by polyposis in one or more of the children, and to the alternating occurrence of cancer of the rectum and polyposis. Since in cancer of the rectum polypi are often present in the vicinity, this should be borne in mind during operative treatment. Many "recurrences" in rectal cancer are due to the presence of polypi with so strong a tendency to proliferation that they themselves develop into cancer after removal of the main tumor.

Cancer ex Ulcere.—Baastad's case in a woman with history of gastric ulcer for twelve years seems to afford evidence for the development of cancer from an ulcer. Clinical and roentgenologic examinations pointed to ulcer, and neither the stomach as seen during laparotomy nor the macroscopic view of the resected portion of the stomach suggested cancer, but microscopic examination of the excised portion disclosed a circumscribed cancer developing in the margin of a simple ulcer.

Eczema Due to Suppositories Containing Quinine.—In Danbolt's two cases of genital eczema following the use of contraceptive suppositories containing quinine, with secondary staphylococcus infection, a marked idiosyncrasy to quinine was established on the application of 0.5 per cent solution of quinine chloride on the intact skin (Bloch).

Ugeskrift for Læger, Copenhagen

93: 829-844 (Aug. 13) 1931

*Case of Foreign Body in Esophagus. E. A. Hallas.—p. 829.
Electrocardiogram of Normal Children. B. R. Hansen.—p. 832.

Case of Foreign Body in Esophagus.—Hallas reports a case in which a toy bracelet watch swallowed by a girl, aged 3, remained for a time in the esophagus, then passed into the stomach, as established roentgenologically, and appeared to have become stationary there. On gastrotomy, however, the watch was not found in the stomach, duodenum or jejunum. Renewed roentgen examination disclosed it in the esophagus, at the level of the manubrium of the sternum, where it had been cast up during anesthesia. The author easily accomplished removal with an esophagoscope while the child was still under the anesthetic. Recovery was uneventful.

twice or thrice daily checking up by the resident physician on the service, are important reasons for low mortality of malarial patients at the University Hospital. In the group under present consideration there was no death directly attributable to the malarial therapy.

Inoculation was made intravenously, with from 2 to 10 cc. of blood taken, if possible, from a patient at the height of a malarial paroxysm, this being repeated if needed. The disease was of the usual tertian type, occasionally taking on double tertian characteristics. The period of incubation varied from three or four days to two or two and a half weeks. The strains seemed to increase in virulence the longer they were used. The use of intravenous typhoid injections was occasionally resorted to; it was discovered in many cases that this served to hasten the onset of malarial paroxysms. The number of chills permitted depended to a great extent on the condition of the patient, but it has been the recent tendency to diminish the number of paroxysms. The first patients were given sixteen chills; of late, following the personal recommendation of Wagner von Jauregg,[20] eight elevations have been considered the optimum. Quinine was then administered by mouth or intravenously, or by both means, until the paroxysms had been controlled; patients were then discharged with quinine for a three month interval, as a rule without treatment.

Check-up examinations were made by the dermatology, ophthalmology, neurology and, at times, the medical departments. A spinal fluid examination was done when possible. Examinations have been repeated at intervals of from three to six months. Unfortunately, it has not been possible to have all the patients return for reexamination; some of them have in fact disappeared, or letters requesting their return have been disregarded. This paper treats of immediately obtained results, supplemented by later observations on the patient as far as these could be made.

IMMEDIATE RESULTS OF TREATMENT

In many of the patients studied it was possible to observe immediate effects, which were in some cases beneficial, in others definitely detrimental. In the remainder there was no obvious change. An evaluation of early results is of especial interest to us, but subsequent observations show that they are not entirely to be relied on. Comment will be made on the relation of height of fever to results, also the fact that serologic reversal is not of especial prognostic value.

In all groups lack of early therapy, or inadequate therapy, was evident. In a few cases, however, serious complications developed in the face of thorough early treatment.

Tabetic Group.—In this group there were nineteen patients who may be regarded as having frank tabes, eighteen men and one woman. It is to be observed that the average age is below middle life, varying from 28 to 53, with an average of 42. The duration of infection in known cases varied from four to thirty years, with an average of fifteen years. The duration of infection was unknown in five cases. Early treatment was absent in eleven of the patients, inadequate in five, dubious in one and, according to ordinary standards, very good in one case only.

The clinical observations in this group were typical for tabes dorsalis in all cases; that is, broadly speaking there were pupillary changes, some ataxia and diminished to absent reflexes. In two cases the tabetic type of pain was the predominant feature. In four, gastric crises were most complained of. Incontinence was noted in four patients. Three made complaint of impotence, a symptom which is not always inquired into. Two, while quite definitely tabetic, had hyperactive reflexes. Unusually marked ataxia was present in one and in another a Charcot joint.

The serologic reactions on these patients showed the features that might be expected of this group. There was a high percentage of negativity. Of nineteen blood tests, seven were negative and twelve positive. The spinal fluid reactions did not correspond as a rule. The reactions were negative and doubtful on blood and spinal fluid in a case in which the signs of tabes, together with definite gastric crises, were present. Cell counts varied from 0 to 87, and the average was 16, unusually high cell counts for patients with tabes. Spinal fluid solids were increased in most cases to a slight extent; that is, in all but two cases the solids were one or two plus, in one case three plus, but in no case was there a very marked increase in solids. The colloidal gold curve was predominantly of the middle zone type; five had 3's in the middle zone; seven had 2's, while three had 1's only; five had a first zone type of curve, which was in one case as high as 4, in the rest 3.

The number of chills varied from three to nineteen, with an average of ten chills. The fever varied from one case which averaged 103 F. to two in which the chills averaged 106. The mean was from 104 to 105 F., mostly 105. Three patients showed liver symptoms during the malarial therapy; two were jaundiced, and one had merely an enlarged liver. These difficulties cleared up before the patients were discharged. One typically tabetic patient became confused during the treatment.

The immediate results of therapy were of considerable interest. Ten patients had symptomatic improvement. One of these actually gained 6 pounds (2.7 Kg.) during treatment. In three, gastric crises were arrested. In two the ataxia was no longer a chief complaint. In one individual the incontinence was stopped. All ten testified as to the definite and immediate improvement they enjoyed. One showed absolutely no improvement, and one was definitely impaired by the fever therapy. The patient who became confused remained somewhat confused up to the time of discharge.

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[20] Personal communication to Dr. Udo J. Wile.

The symptoms and signs varied greatly. The early group showed florid secondary syphilis and either an essential type of alopecia, leukoderma colli or both. Headache was a chief complaint in most. One patient had a stiff neck; this patient had in fact all the evidence needed for a diagnosis of a severe meningitis. The patient who had been seen a month previously in the primary stage had had no neurologic signs and had been thoroughly treated, but he returned, complaining of severe headache and dimness of vision. The latter was found to be due to a neuroretinitis and he had in addition hyperactive reflexes and slight mental deterioration. The formerly negative spinal fluid had become markedly positive, showing a positive Kahn reaction, increased solids and 760 cells. The patient who showed a recurrent florid secondary syphilis had in addition lost 20 pounds (9 Kg.), complained of headaches, and showed sluggish pupils and markedly hyperactive reflexes. In the remainder of the group, symptoms and signs showed great variation. Twitching of muscles, dizziness, nausea, slight ataxia, dysarthria, hemiplegia, ulnar neuritis and uncontrolled "sighing" were complained of in one case each. Possible retention occurred in two cases; various pains were complained of four times, and headache four times. Three had epileptiform seizures. Ten had various types of ocular conditions, varying from pupillary changes to optic atrophy. One had nystagmus. The reflexes were increased in twenty, decreased in two and normal in four. Two of the patients had congenital syphilis.

The blood test was found to be positive in thirty cases, doubtful in one, and negative in one case. The spinal fluid serologic reactions were found to be positive in thirty-one and doubtful in one case. The cell count varied from 0 to 750; other high counts were 551, 310, 250, 134, 100, 94, 65, 52, 48, 32 and 25. The highest cell counts were found in this group, as might be expected. There was an increase in solids in twenty cases, an occasional one plus occurring in the remainder. Nine patients showed first zone gold curves, fourteen showed second zone changes; the remaining curves showed changes represented by 1's and 2's.

The number of paroxysms administered to this group varied from five to sixteen and averaged ten. Temperatures varied from 103 to 106, the average as in other groups being 104 or 105 F. Icterus developed in two patients; two became somewhat anemic; three aborted the malaria; one developed an acute cardiac dilatation and was stopped, and one patient, a juvenile, became incontinent.

Lumbar puncture immediately following malarial therapy was done in twenty-eight patients. The serologic reaction remained the same in nineteen cases; three positives became negative, two became doubtful; there was lessened positivity in two cases. In two of the early secondary cases there was an increase in positivity. Most marked changes were noted in the cell counts, which varied from 0 to 40, other high counts being 37, 20, 11 and 10. The remainder were normal. The colloidal gold reaction showed less intensity in two first zone curves and in six second zone curves. It showed more in three of the latter. It reversed from second to first zone in two cases. The remaining gold curves showed no essential change.

In the case of the eight unusually early patients with secondary syphilis, signs and symptoms disappeared entirely, including the florid secondary infections, which in most cases disappeared during the course of treatment. Epileptic seizures disappeared in all cases, but one of these three patients took on a definite aspect of dementia paralytica. Ten others showed well defined improvement. The severe headaches associated with meningeal irritation in all cases disappeared. The man with severe ulnar neuritis improved. No observation was made on the remaining patients.

LATER OBSERVATIONS

To the foregoing observations we have been able to add, in most cases, clinical and serologic data obtained at periods varying from three months to three years. Note has been made of the fact that patients did not all return as requested or were not able to do so. The following considerations and comparisons are therefore based on last interviews with the patients.

Tabetic Group.—Of this group of nineteen, two have not returned for check-up examinations and no information is available. A report on two others states that they have improved, in one case to a marked degree, but the serologic data could not be obtained.

Five patients were seen from eighteen to thirty months after malarial therapy. One of these seemed unimproved. The remainder were doing exceedingly well; working, gaining weight and, in some cases, practically asymptomatic. One had had two attacks of gastric crises; in one a normal pupillary reaction had become Argyll Robertson; in another, who had shown irregularities, the ocular condition became normal. One could not remain for lumbar puncture; another was reported by his home physician and observations on the fluid were not available. Of the positive reactions found in the remaining three, two continued to be positive and the other became negative. The colloidal gold test was normal in one, became normal in the second, and reversed from second to third zone in the third. One four plus blood test became negative.

Four patients were seen at the end of a year. One of these was definitely worse, particularly in regard to gastric crises; in fact, a sympathectomy was resorted to in an effort to control these. The other three patients had improved remarkably. The first showed no serologic changes. A second showed no change in the spinal fluid; one changed from three plus to one plus; one from plus-minus to three plus. One gold curve did not change; two others became normal. One two plus blood test became negative.

Six months after malarial therapy, four patients were last seen and of these, one who had shown improvement immediately following therapy had become definitely worse. The other three showed marked improvement as to general well being; they gained weight, were stronger, less ataxic and had fewer if any pains. In one, no serologic information was obtainable; in none was the spinal fluid serology changed. One showed a change in the gold curve from first zone to second; one showed a change from second to first, and the third changed from a second zone curve to normal.

Two patients were not again heard from after a third month check-up. Both of these had gained weight but were otherwise clinically unimproved. Both, curiously enough, showed a reduction to normal of their spinal fluids, including in each case a definite first zone type of curve. The blood test changed from three plus to negative in one and had been already negative in the other.

In none of the foregoing cases had there been much change in the cells and solids from the time of exami-did not change. Cells and solids became normal in all cases.

Of the remaining patients in this group, seven returned for check-up examination at the end of two years or more. Four of the cases had become asymptomatic; one patient showed improvement but complained of headache at times; one patient complained of slight incontinence; another case was asymptomatic but had signs. Serologic information was not forthcoming in two of the group. The serologic response of the blood remained positive in three. Two positive reactions became negative. In the case of the spinal fluids, two reactions remained positive and three became negative. Two fairly normal gold curves and a second zone curve remained unchanged. Two second zone curves became normal.

Four patients were seen at the end of a year. In one, a congenital case, the signs and symptoms of cerebrospinal involvement had disappeared, together with improvement of an interstitial keratitis. The patient with hemiplegia falls in this group. While improved generally, he showed no improvement of the hemiplegia. The man with ulnar neuritis (possibly not syphilitic) showed improvement of this symptom immediately following treatment, but at the end of a year became much worse, and his condition suggested dementia paralytica. The fourth was much improved. The blood reactions in this group remained positive in two and became less positive in two. The serologic reaction of the spinal fluid remained positive in two patients, became negative in one, and became more positive in the patient with ulnar neuritis. The colloidal gold reaction remained the same in two cases, became normal in one, and reversed from first to second zone in the fourth.

At the end of six months, four patients were seen: two had become entirely asymptomatic, one showed an improvement, complaining of numbness and leg pains, and a fourth felt much better but was weak. Serologic tests on the blood remained the same in two patients: one positive, the other negative. One positive test became normal, another less positive. On the other hand the spinal fluid tests became negative in two cases and remained equally positive in two. Of three first zone curves, two remained the same while one showed less intensity. A second zone curve became normal.

Seven patients were last seen at the end of three months. Three cases were asymptomatic; one showed marked improvement; one epileptic patient was markedly improved but had an occasional attack; one, who was otherwise normal, complained of pain in the precordium, the reason for which was not discoverable, and one case was asymptomatic without change in signs. In other words, all in this group improved. Information regarding the serologic changes of the blood was unobtainable in four cases, and three remained the same, two positive, one negative. Spinal fluids were examined in all cases, remaining positive in four cases, becoming negative in one, and less positive in two. Two essentially normal gold curves remained so; changes were noted in the rest. Three second zone type curves became normal, a first zone curve less intense, and a first zone curve became second zone.

In the entire group, solids and cell counts for the most past paralleled one another. All high cell counts were markedly lowered. Nine remained the same; none of these were high; four of them had been normal originally. Three showed slight increase in cells and solids. Five showed a decrease, whereas in eight patients a marked decrease in cells and solids was to be observed.

Of the eight early cases in this group, six remained entirely negative; one showed recurrent mucous patches, without cerebrospinal symptoms—a most interesting observation—and the other, owing to lack of further treatment, showed neurorecurrence accompanied by lesions of the tertiary type. Epileptic seizures, which had immediately disappeared in three cases, returned in one but were less prominent and frequent, general improvement being evident. Nine cases became entirely asymptomatic; seven showed improvement of varying degrees; in one case headache persisted, in others, slight incontinence of urine, backache, and pain in the precordium, and in a patient with hereditary syphilis all symptoms of cerebrospinal origin improved, together with improvement of interstitial keratitis. In two, signs persisted but symptoms had disappeared; one only was unimproved and one made definitely worse. Gain in weight was again noted. Presumably, of those who were not reexamined some became worse. This group shows the most favorable results, as might well be expected, for the involvement was not as severe as that in the two preceding groups. It is of interest that many serologic tests of the blood and even more spinal fluid tests became negative; that in this case increased involvement was matched by increased serologic responses, and that once more there was no relationship between clinical results and the colloidal gold determinations. Once more, cells and solids showed marked reduction.

CONCLUSIONS

1. Malarial therapy was used in the treatment of tabes, of dementia paralytica with tabes, and of diffuse neurosyphilis, including cases complicating the secondary stage.
2. In a large percentage of cases, immediate improvement was noted. Thus, 53 per cent of the tabetic group showed immediate improvement, and later observation increased this group to 67 per cent. In the greater number of these, improvement amounted to complete symptomatic remission. One patient showing immediate improvement relapsed later.
3. In patients with dementia paralytica with tabes, 40 per cent showed immediate symptomatic improvement; later observation increased this figure to 67 per cent. Thirteen per cent of the cases were arrested; 13 per cent were made worse, and 7 per cent of the patients died after leaving the hospital.
4. The immediate results were most striking in the diffuse central nervous system group. In the group complicating secondary syphilis, all eight were immediately improved; seven later remained asymptomatic, and one subsequently relapsed. In this case, recommended therapy was not carried out.
5. Twenty-four cases of later occurring diffuse neurosyphilis showed striking immediate improvement in all but one case. The later follow up of this group showed improvement in 84 per cent, no change in 10 per cent, and a change for the worse in 6 per cent.
6. Ultimate gain in weight was an almost uniform feature, even in patients who did not otherwise improve.
7. Following treatment, many colloidal gold curves became negative, reversed, or became more or less intense without paralleling clinical results.

pleocytosis was increased or the Wassermann reaction became more strongly positive in fifteen. In sixteen cases in which there was a reversal of the spinal fluid to normal, however, there was a relapse to the original status while the patients were under continued observation. Of the forty cases in which the Wassermann reaction of the blood was positive at the time of the inoculation with *Plasmodium vivax*, in fifteen there was reversal to normal, which has remained.

The duration of the syphilitic infection was not a factor in estimating the outcome of the treatment by malaria. The duration of the syphilis, in the cases in which treatment was successful, ranged from eighteen months to twenty-three years, with an average incidence of ten years and five months. Similarly the duration of the neurosyphilis was not of prognostic significance, nor did the type of the colloidal benzoin reaction aid in forecasting the result of the treatment. The cases with a first zone or paretic type of curve had practically the same incidence of reversal as did those with the second zone or so-called syphilitic type of curve. A similar appraisal was made of the cell count in the spinal fluid. With reference to pleocytosis the cases were divided into three groups: (1) those with lymphocytes up to 50 in each cubic millimeter; (2) those with from 51 to 100, and (3) those in which there were more than 100. In fifteen of the cases of the first group, in four of the second group, and in one case of the third group, treatment was successful. Of the eight cases in which the condition of the spinal fluid was improved, five were in the first group, one case was in the second group and two cases were in the third group. In most of the cases, intensive treatment had been given before the course of malaria, which resulted in a higher incidence of low cell counts; significant deductions from a study of this feature of the characteristics of the spinal fluid, therefore, are not justifiable.

COMMENT

In these fifty-eight cases there were no outstanding features in the history, in the characteristics of the spinal fluid or in the influence of the arsphenamine previous to the course of malaria that could be used as significant guides in selection of the type of asymptomatic neurosyphilis that will derive the most benefit from treatment by malaria. The incidence of serologic reversal in this group is lower than in cases of paresis sine paresi (45 per cent).[4] Early in my experience with this treatment I purposely avoided the use of antisyphilitic medication following the course of malaria, with the idea of not confusing the results. However, I now urge all patients treated in this manner to receive either arsphenamine or bismuth, or both, within six months after the course of malaria, because observation has shown that, although the progress of the neurosyphilis may be arrested, other manifestations of syphilis in the viscera may become aggravated. Particularly significant is the fact that 34 per cent of a group of patients with asymptomatic neurosyphilis, the majority of whom had undergone intensive treatment with arsphenamine, tryparsamide, intraspinal medication, mercury intramuscularly, bismuth, and large doses of potassium iodide, had experienced complete reversal of the spinal fluid to normal following treatment by malaria. Likewise, antisyphilitic treatment following the malaria did not materially help in producing these reversals. In an additional 14 per cent the spinal fluid was greatly improved. In none of the cases in which treatment was successful have objective neurologic signs of the disease as yet appeared. Continued examinations in these cases will be necessary to prove this observation. In addition to its accomplishments in the treatment of dementia paralytica, it is evident from this study that treatment by malaria has the additional value of being the outstanding agent for the prevention of parenchymatous neurosyphilis after a trial with the usual measures of treatment has failed.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. WILE AND DAVENPORT AND DR. O'LEARY

Dr. Joseph E. Moore, Baltimore: I agree with Dr. O'Leary that in most cases of asymptomatic neurosyphilis one should follow a system of preliminary treatment for six months or a year before instituting malaria therapy. Treatment with malaria is risky in any except expert hands. The only instances of asymptomatic neurosyphilis in which I adopt fever therapy from the outset are those patients with the dementia paralytica formula in the spinal fluid, who are, I believe, candidates for parenchymatous neurosyphilis in later life. The paper of Drs. Wile and Davenport is especially interesting in that they report a higher percentage of improvement from malaria therapy in tabes and meningovascular neurosyphilis than has previously been reported from this method of treatment by other observers on the continent, or than can be obtained by any other method of antisyphilitic treatment. My own experience with the malaria treatment of tabes has differed in two particulars, regarding which I should like to ask for further information. The symptom of ataxia, so far from being improved by malaria, has usually been made worse by it. I have come to fear also the fever treatment of tabetic patients with cord bladders and infected urine. Two deaths have occurred in such patients from ascending urinary infection during or shortly after the malaria. Finally, I would emphasize the fact that a perusal of the literature as to the results obtained in syphilis of the central nervous system by various methods of fever therapy, including malaria, relapsing fever, rat-bite fever, foreign protein and diathermy, seem to indicate that, while any of these methods is successful in dementia paralytica in a fair proportion of cases, the percentage of remissions obtained with malaria is definitely higher than with other methods of inducing fever. There appear to be fewer relapses and the remissions last longer. This, together with other facts that have developed in recent years, makes it seem to me probable that fever is not the only feature of the beneficial effect of this form of treatment, and that some other factor enters into the results. This other factor, whatever it may be, is more adequately provided by malaria than by other forms of induced fever. I feel that for the present the induction of fever by diathermy should be regarded as distinctly in the experimental stage.

Dr. Harold N. Cole, Cleveland: All syphilologists have cases of resistant syphilis of the central nervous system. In the past it has been difficult to handle these cases, and the results have been poor, to say the least. I think from these statistics, from those of other clinics, and from my own statistics that we must not say we have another remedy at hand which gives us a great deal more hope in taking care of these resistant cases that do not seem to respond to anything else. We are using malaria more and more in all these cases, not necessarily dementia paralytica or its tabetic form, but in all cases of resistant syphilis of the central nervous system. I agree with Dr. O'Leary and Dr. Moore that we should use other treatment first, but if the patient does not respond in six months or a year he certainly should have malarial therapy. Treatment should be continued for some time afterward. We can then hope to make these patients asymptomatic.

Dr. Paul A. O'Leary, Rochester, Minn.: In this appraisal I endeavored to evaluate malaria therapy only in the treatment of asymptomatic neurosyphilis, although recognizing that the use of the arsphenamines and compounds of mercury and bismuth is essential to the treatment. We must continue to emphasize the fact that the nonspecific methods of treating syphilis are not panaceas. They are, however, invaluable adjuncts to he adopted the agar slip method devised by Welch. Miss Chevassut used the same method for making cultures of the hypothetic multiple sclerosis virus. If one compares her photomicrographs of colonies or of single spheres with Barnard's pictures of virus colonies from Rous's fowl sarcoma, human cancer or mouse sarcoma (plate II, figs. 1, 2, 4, 7, Barnard [7]), one is deeply impressed by the striking similarity of the two sets of photomicrographs. Finally, the "life cycle" of the multiple sclerosis virus, as illustrated in Sir James Purves-Stewart's lantern slides, is a true companion piece to the diagrammatic representation of Barnard of bodies seen in cultures of bovine pleuropneumonia. In both, the small granules were shown attached to the larger spheroids, sometimes by a fine filament.

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[4] O'Leary, P. A., and Brunsting, L. A.: The Nonspecific Treatment of Neurosyphilis, J. A. M. A. 94: 452-454 (Feb. 15) 1930.

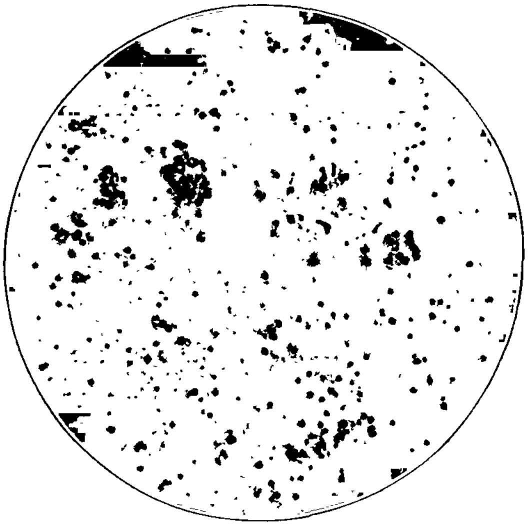

Fig. 1.—Forty-hour agar-serum-spinal fluid culture from case of multiple sclerosis. This and the accompanying photomicrographs were made with Beck's focusing dark ground illuminator, 2 mm. apochromatic oil immersion object glass, 1.2 normal aperture, and compensating eyepiece 25 ×. The extension of the camera was adapted to such a length that the linear magnification was 1,000 diameters measured with an ordinary condenser as illuminator.

At the Westminster Hospital, through the kindness of Sir James Purves-Stewart and Miss Chevassut, I had the opportunity to become acquainted with the original method of preparing cultures from the spinal fluid in cases of multiple sclerosis. The optic outfit which they used, together with a mercury vapor lamp, was purchased from Beck and Son, and work was started in this laboratory at the end of 1930. The same technic was used as that described by Miss Chevassut. Under aseptic precautions, spinal fluid was taken from the patients at the hospital and immediately carried to the laboratory across the street. Two different cultures were prepared: The first one was a mixture of 2 per cent agar in Hartley's broth, which had been sterilized in the glass tubes together with three glass slips and their supporter. The agar was melted in the water bath, cooled to 45 C., and a mixture of 3 cc. of normal human serum, filtered through a Seitz filter, and 5 cc. of spinal fluid was added, after having been warmed to 40 C. The second culture was prepared by adding to 10 cc. of Hartley's broth a mixture of 3 cc. of serum and 8 cc. of spinal fluid. Both cultures were incubated at 37 C. for different lengths of time. From more than thirty cases of multiple sclerosis which had been studied, sixteen were selected for spinal fluid cultures. In eleven experiments a culture from normal spinal fluid was prepared as a control and in the rest of the cases a mixture of agar broth with serum alone.

The slips from the agar cultures were examined under the dark-field microscope and photomicrographs prepared with a specially constructed photographic apparatus. In every slip from the multiple sclerosis cultures the spheres could be seen that had been described and photographed by Miss Chevassut. Many of them showed a small granule attached, and many colonies could be seen. Figure 1 is a representative picture of a forty hour agar culture of the spinal fluid from a patient with multiple sclerosis, in whom the first signs of the disease had appeared four years previously. But a similar picture could be obtained if spinal fluid from a patient not suffering from multiple sclerosis or any neurologic disease was used. Figure 2 is from a forty hour culture of the spinal fluid of a patient with hyperthyroidism, and figure 3 is from a twenty-four hour culture from a case of pulmonary tuberculosis. In these two controls, too, spheres, granules and colonies could readily be detected, and it did not seem possible to state that there was any difference between the general appearance, size, brilliance or number of the different spheres.

It was not necessary even to incubate the cultures in order to obtain sphere formation. Immediately after the agar had been mixed with the serum and spinal fluid and the slips had cooled off, numerous spheres and colonies could be seen in the dark-field microscope. They did not seem to be as large and numerous, however, as those seen in the forty hour cultures. Figure 4 illustrates such a preparation from a mixture of agar-serum with spinal fluid from a case of multiple sclerosis. Similar "growth" was seen in mixtures with normal spinal fluids that were immediately examined and in cultures from multiple sclerosis spinal fluid that had been boiled for several minutes before it was mixed with the agar-serum. In agar or serum alone, only small isolated submicrons were detected, but mixtures of the two, with the addition of phosphate buffer of a p_H of 7.6, produced the typical spheres and colony formation.

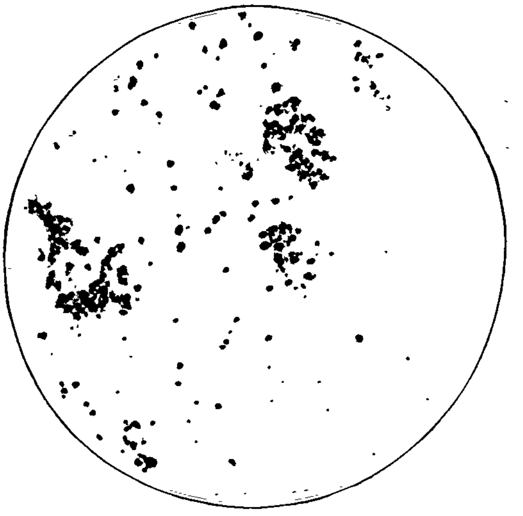

Fig. 2.—Forty-hour control, agar-serum and spinal fluid from a case of hyperthyroidism.

Some control spinal fluids that showed a positive Nonne reaction gave especially brilliant colony formation. It was suspected that the globulin content of the by the addition of sodium oxalate while, on the other hand, such oxalated plasma has a demyelinating effect on rats' spinal cords, speaks against the action of a lipolytic ferment. I have pointed out in former publications[12] that demyelination of nerve fibers can easily be produced in test tube experiments by many toxins which, at the same time, are hemolytic and, among others, also by a bile product, sodium taurocholate. It was suggested that the same mechanism might be responsible for the dissolution of the hypothetic lipoid membrane of the red blood cells and the lipid membrane of the myelin sheaths. Therefore, no absolute evidence is yet presented that a ferment must be responsible for the demyelination found histologically in multiple sclerosis.

Marburg left open the possibility that unknown toxins, as assumed by the fourth group of research workers, might be the etiologic agent. He cited the different substances that had been thought responsible, referring especially to the lead theory of Oppenheim and to the ideas that metabolic products such as indole, skatole and phenol, might be responsible factors.

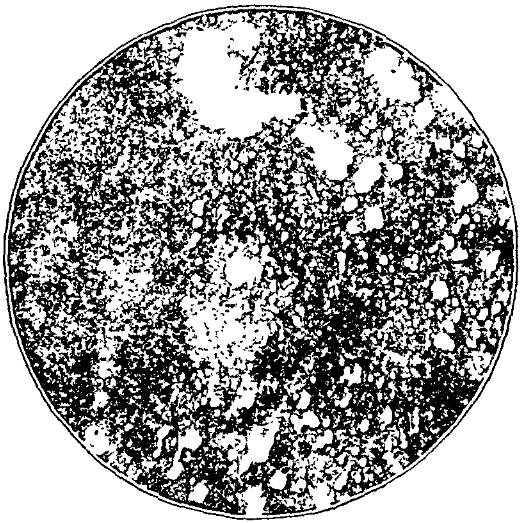

Fig. 5.—Serum globulin in agar-broth.

Hassin[13] supported the theory of the action of a toxin acting on the myelin sheaths, based on histologic evidence. Putnam[14] demonstrated two dogs, which showed multiple sclerosis-like lesions in the spinal cord following injection of tetanus toxin, and he reviewed former sporadic reports of a similar nature.

Assuming the presence of a toxin circulating in the blood, there must be another factor present which allows these toxins to penetrate through the hemato-encephalic barrier and invade the central nervous system, or there must be a diminished resistance of the myelin sheaths against the action of such a toxin. Such conditions may be established in trauma, infection and pregnancy—all of them conditions known to favor the onset of multiple sclerosis.

An attempt was made to demonstrate the presence of a myelolytic toxin in the urine of patients with multiple sclerosis and the following interesting observations were made: Fifty cc. of urine was evaporated in vacuo at from 50 to 60 C. and the remainder was redissolved in 5 cc. of a buffer solution of a p_H of 7.6, prepared from a mixture of primary and secondary phosphates. This solution was incubated with a small piece of rat spinal cord (approximately 5 mm. in length) for twenty-four hours at 37 C. The spinal cord was then fixed in a diluted "solution of formaldehyde-U. S. P." (1:10) and embedded in paraffin, and sections were stained for myelin sheaths with Weil's method. Under the microscope, with oil immersion, a peculiar destruction of the myelin sheaths was seen in twelve out of fourteen preparations from the urines in cases diagnosed as multiple sclerosis. The myelin sheaths were broken up into numerous fine granules, which were arranged along the original outlines of the sheaths. In a section stained by Davenport's method the axis cylinders appeared markedly swollen but did not show such a marked fragmentation as the myelin sheaths. Eighteen out of twenty urines from normal persons and dispensary patients, which did not show neurologic disease, did not produce this picture of globular fragmentation of the myelin sheaths of rats' spinal cords. The myelin sheaths had preserved their original outlines but were more or less swollen. In a case of Friedreich's disease, which was studied at the Montefiore Hospital in New York, the same histologic picture was seen in rat spinal cord, which had been incubated with the urine of this patient, as that described in multiple sclerosis. In a case of postencephalitic parkinsonism the fragmentation was vaguely present in some places, while the rest of the sections appeared normal. The urine of a patient with facial neuritis did not produce any change in the rat spinal cord.

Preliminary control experiments showed that urea or phenol is not responsible for the phenomenon described. The experiments are continued with the idea of trying to determine the factor responsible for the myelin fragmentation in most of the specimens of urine from cases of multiple sclerosis and those which might be found in controls.

In recent years, many instances have been reported in which demyelination of the spinal cord had been produced experimentally in animals fed with a diet deficient in certain vitamins,[15] and this demyelination also had been found in rats to be connected with glial overgrowth.[16] It was recently reported[1] that the inorganic phosphorus content of the serum of patients with multiple sclerosis is, in more than one third of all the cases, far below the figures that were found in the average of normal persons and of patients suffering from other diseases.

The theory of Mueller and Struempell,[17] that in multiple sclerosis one is dealing with a primary disease of the glia, which, by its overgrowth, compresses and destroys the myelin sheaths, has never found many supporters. The fact that demyelination precedes the glial reaction speaks against such a mechanical hypothesis. But there still remains the possibility that damage or disease of the glia may interfere with the rebuilding of the ever changing lipid material of the myelin sheaths, if one accepts Del Rio Hortega's theory that the oligodendroglia is responsible for the metabolic regulation of this structure. In this connection, it

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[12] Weil, Arthur: The Effect of Hemolytic Toxins on Nervous Tissue, Arch. Path. **9**: 828 (April) 1930; Die Wirkung von Schlangengiften auf Nervengewebe, Arch. f. exper. Path. u. Pharmakol. **154**: 228-238, 1930.

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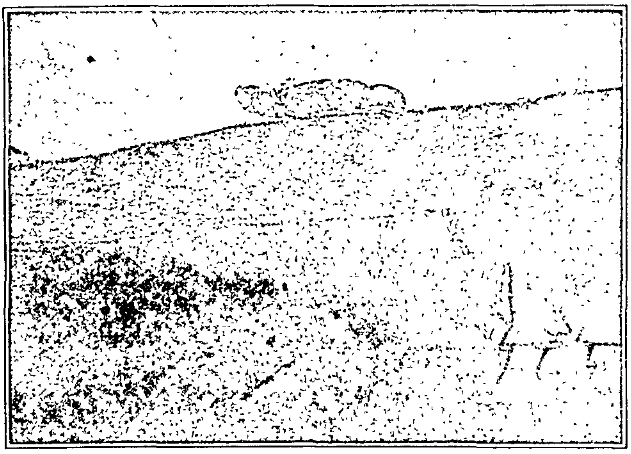

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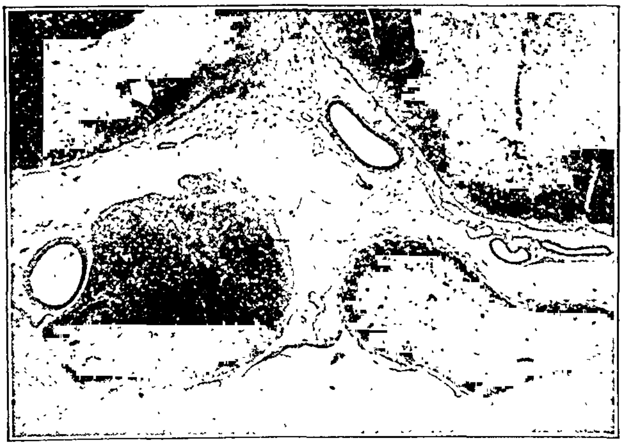

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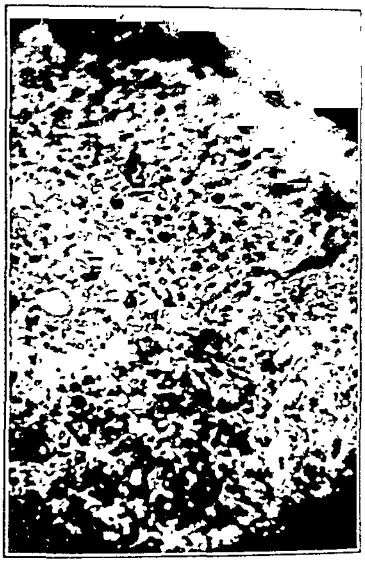

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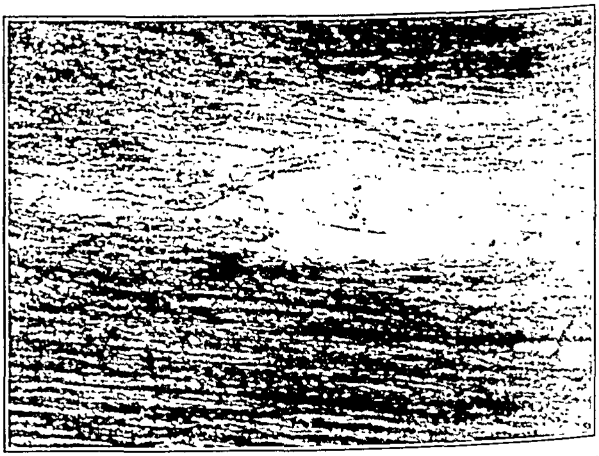

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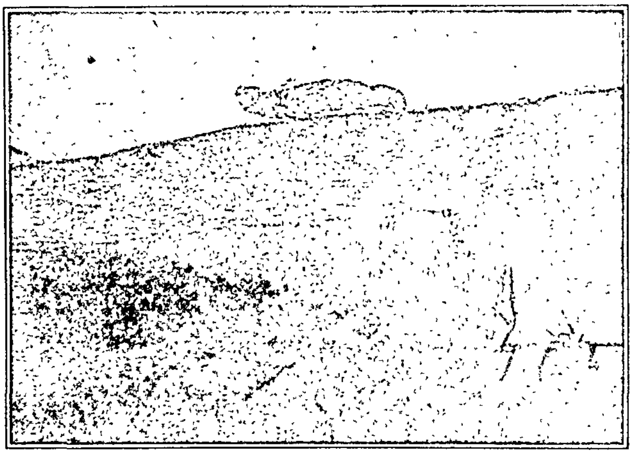

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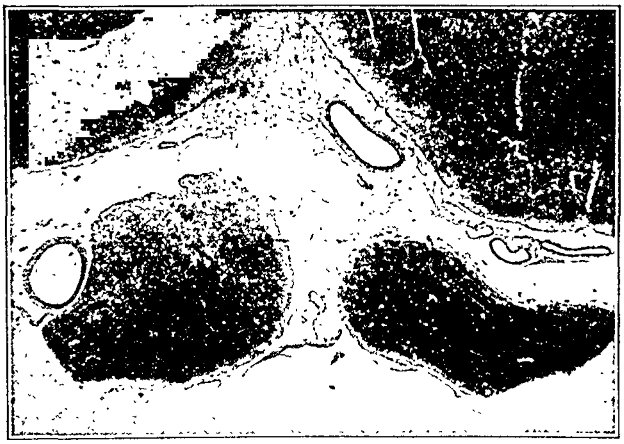

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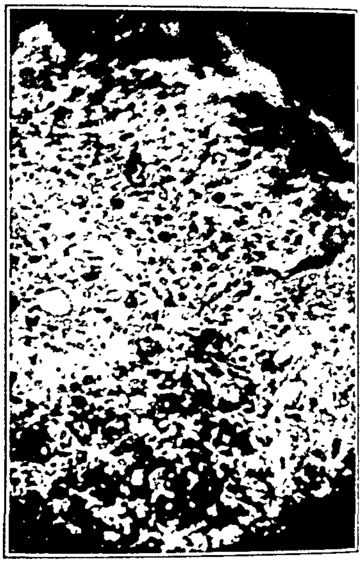

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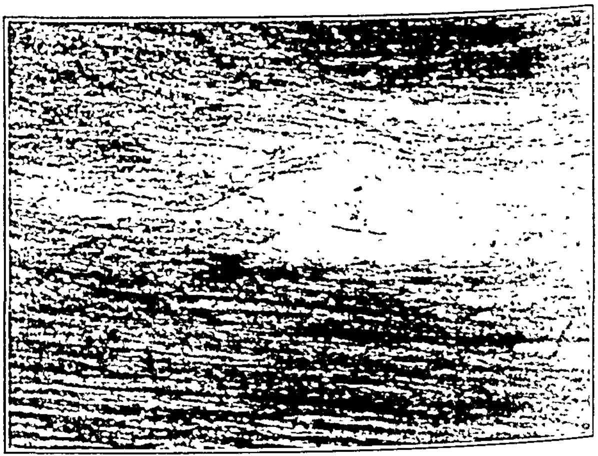

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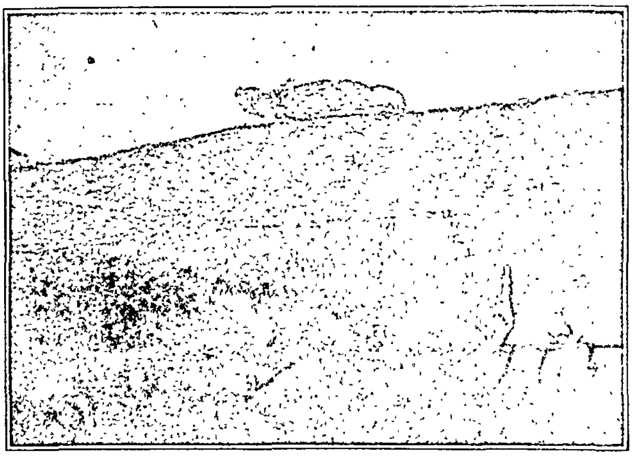

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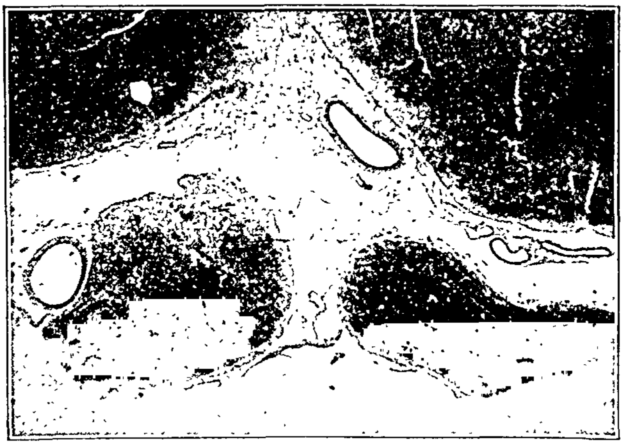

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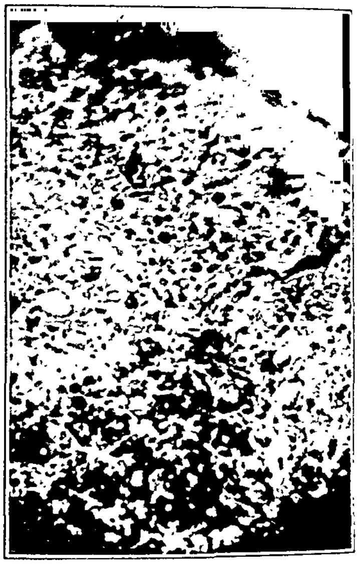

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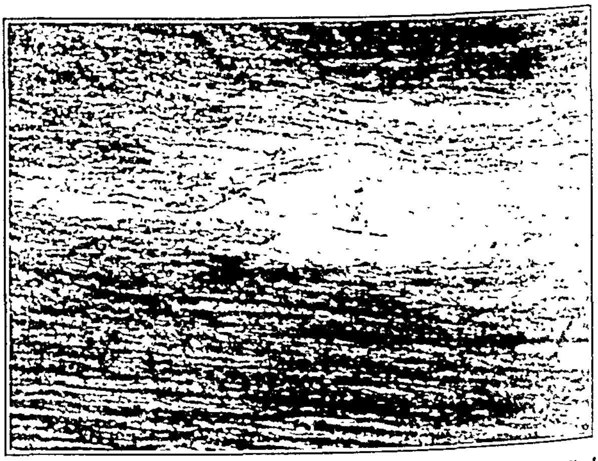

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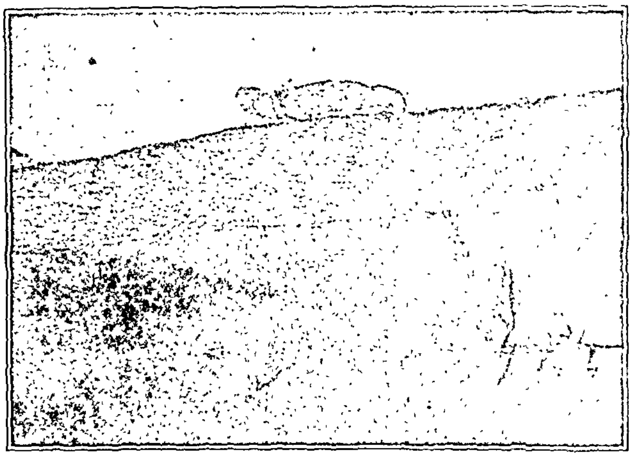

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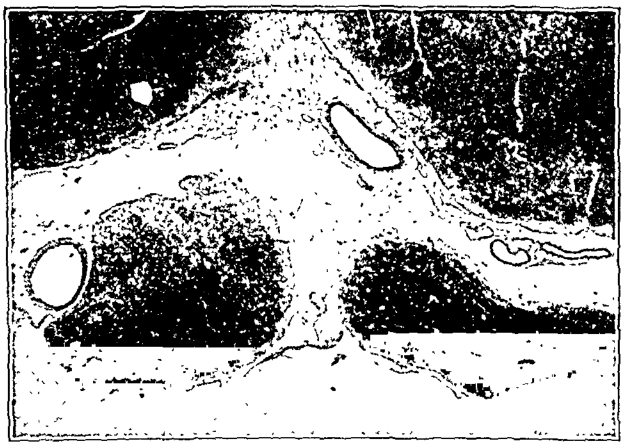

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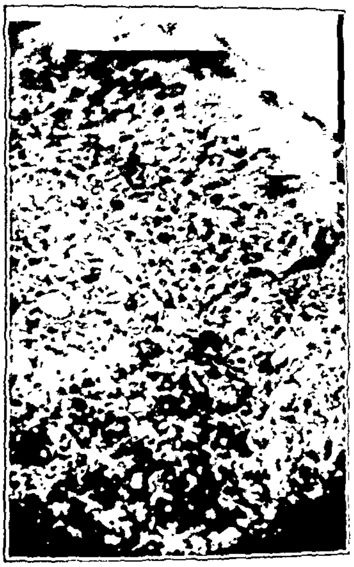

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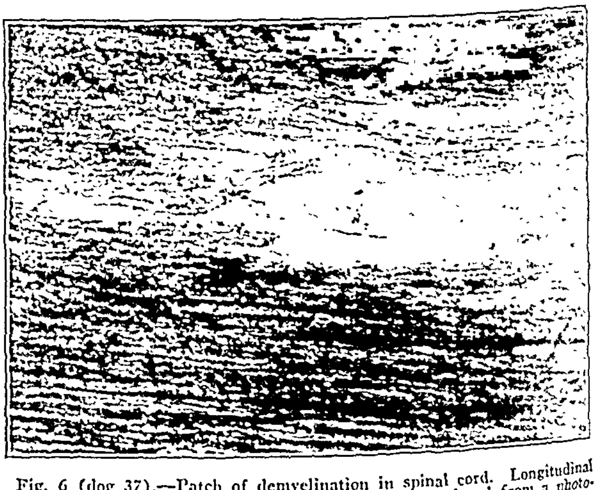

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[12] Meyer, A. (Bonn): Experimentelle Erfahrungen über die Kohlenoxydvergiftung des Zentralnervensystems, Ztschr. f. d. ges. Neurol. u. Psychiat. **112:** 187-212, 1928.

Experimental Embolism.—The areas of demyelination in carbon monoxide poisoning always surround a large vessel, which is usually obstructed by a cellular plug. Meyer[12] expresses the opinion that the degeneration is of vascular origin. To test this hypothesis, attempts were made to obstruct vessels by emboli of various types. Those ordinarily used, such as starch granules or lycopodium spores, either came to lie harmlessly within the vascular net or else produced complete necrosis and cyst formation, as has been described by Bodechtel and Müller[13] and by Cone and Barrera.[14] Finally, a commercial emulsion of cod liver oil was employed, in the hope that the viscous, cohesive globules would obstruct long stretches of rather large vessels, as do the thrombi in the degenerated areas after carbon monoxide poisoning.

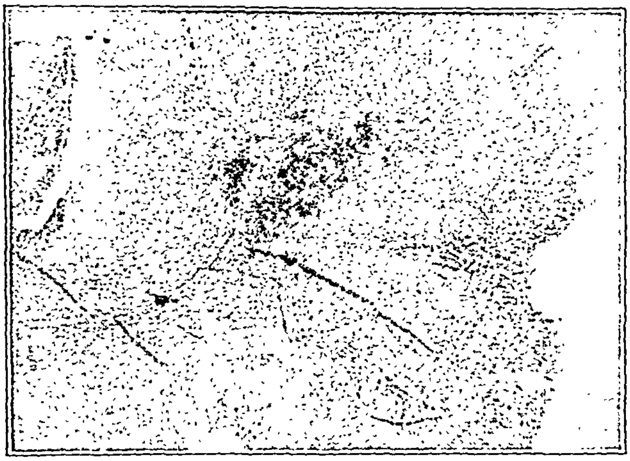

Fig. 11 (dog 77).—Relative persistence of axis cylinders in a similar patch (from an adjacent block). Bielschowsky stain; reduced from a photomicrograph with a magnification of 5 diameters.

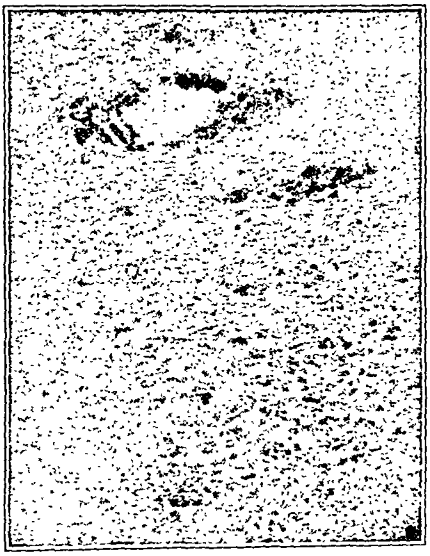

Fig. 12 (dog 30-54).—Embolism with cod liver oil emulsion twenty days before autopsy. Perivascular infiltration and proliferation of fixed glia cells about obstructed vessel in white matter of hemisphere. Neutral red stain. Reduced from a photomicrograph with a magnification of 500 diameters.

Eight cats and seven dogs were used. The doses given were from 0.05 to 2 cc. for a cat and from 1 to 3 cc. for a dog, of emulsion, diluted with an equal amount of water, injected into each carotid. Two animals died immediately. In the others, transient paralytic symptoms occasionally occurred. The animals were killed at varying intervals. In almost all of them, mild areas of perivascular infiltration were found. Four showed satisfactory areas of demyelination at intervals of twenty days, one month, three months, four months and five months, respectively, after the injection. In the animals that were killed early, the lesions greatly resembled those already described in carbon monoxide poisoning (figs. 14 and 15). The axis cylinders were less well preserved and there was more cellular infiltration. In the older lesions, some of the myelin sheaths regained their normal appearance (fig. 16), but many naked axis cylinders were seen. Proliferation of astrocytes had begun (fig. 16).

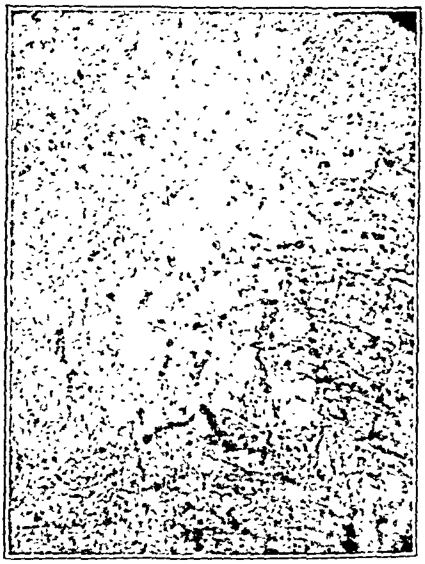

Fig. 13 (dog 30-54).—Embolism with cod liver oil twenty days before autopsy. Demyelination. About the same vessel as that shown in figure 12. Loyez stain. Reduced from a photomicrograph with a magnification of 500 diameters.

COMMENT

These results may be taken to indicate that myelin is more easily damaged than the axis cylinder, as a result of insufficient blood supply and perhaps because of other adverse circumstances. However, one is not compelled to postulate any specific virus, toxin or ferment to account for myelin loss: it appears to be more a matter of quantity and distribution of injury than of quality.

Further, it appears that regeneration of completely destroyed myelin does not occur in the central nervous system of adult animals, even when the axis cylinder is intact. It may be objected that the period of experiment is too short to allow any sweeping conclusions. However, a year is a long time in a dog's life, and five months in a cat's. Myelination is completed in the new-born animal within these periods.

Wherever myelin is destroyed in these experiments, there is proliferation of fixed glia. It may be objected that in no instance is the gliosis as intense as that usually seen in multiple sclerosis. However, the amount of gliosis in that disease is extremely variable and some-for use, if one wanted to try to study the properties of the agent which was causing this destruction of myelin. I would like to say that I proved to many a supporter of the theory that the destruction of myelin is not caused by an infectious agent but by what we generally refer to as toxin; namely, a substance which when it comes in contact with myelin, will possibly destroy it. In a further effort to try to delineate some of the properties of this substance, the hypothesis was formulated that an abnormal lipasic activity in the blood was responsible for the destruction of the myelin. This does not mean that there is an actual abnormal lipase present. The meaning is that there is abnormal lipasic activity. It is quite possible that the normal blood lipase, being supported by products which do not belong there, can behave in an abnormal manner. Proceeding along these lines, I thought I had demonstrated such abnormal activity, and I was pleased that Crandall and Cherry, in Illinois, found the same result with a totally different method, and working independently. I should also like to follow Dr. Hassin's line of statement and comment on the paper of Drs. Putnam, McKenna and Morrison, as I understood it, that despite the ability of the various poisons to produce changes in the myelin sheath, cannot one still say that the disease multiple sclerosis, which after all is a pretty characteristic disease, has a poison, a toxin or a toxic condition of its own?

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[13] Bodechtel, G., and Müller, G.: Die gewebliche Veränderungen bei der experimentellen Gehirnembolie, Ztschr. f. d. ges. Neurol. u. Psychiat. **124:** 764-793, 1930.

[14] Cone, William; and Barrera, S. E.: The Brain and the Cerebrospinal Fluid in Acute Aseptic Embolism: An Experimental and Pathologic Study, Arch. Neurol. & Psychiat. **25:** 523-547 (March) 1931.

DR. FRANK R. STARKEY, Detroit: I wish to speak especially on the clinical side of multiple sclerosis: It is well known that there are various febrile conditions such as measles and scarlet fever and encephalitis, especially, that leave sequelae that resemble closely those of multiple sclerosis. I have had, and have at the present time under my care, patients that have all the classic symptoms of multiple sclerosis, namely, pallor of the temporal sides of the disks, intention tremor, scanning speech, sagging of the lips, and peculiar gait. I have not had an opportunity to make histologic examination in these cases, but I should like to ask whether any one present has had an opportunity to do so. I believe that if we are thorough in this particular line of research we shall throw some light on the histopathology of multiple sclerosis.

DR. CHARLES DAVISON, New York: I, too, had an opportunity to observe the work of Chevassut and James Purves Stewart last summer at the Westminster Hospital in London. I was not sufficiently enthusiastic to repeat the work but I followed the literature closely from that time on. A French worker, whose name escapes me, and Carmichael from the National Research Council in England came to the same conclusion that Dr. Weil did. The organisms found by Miss Chevassut in multiple sclerosis were found in the spinal fluid of other neurologic disorders as well as in normal spinal fluids. If the results of Dr. Weil's experiments concerning the effect of concentrated urine on the spinal cord can be compared with the pathologic picture seen in multiple sclerosis, there is one more argument against the organismal theory of multiple sclerosis. I am taking the privilege of discussing some slides Dr. Weil has shown me personally from cases of multiple sclerosis with which he has experimented using the serum, the plasma, as well as the cerebrospinal fluid. His experiments, as well as the previously advanced theories, favor the conception that this disease is a toxic and not an infectious process. Drs. Putnam, McKenna and Morrison showed some slides from experimental sclerotic plaques. In these slides they have shown what appear to be perivascular infiltrations. I should like to ask whether any fat stains were made from these sections. The last two slides of Dr. Hassin also showed a typical perivascular infiltration. I had the opportunity of studying cases of multiple sclerosis and found types of similar round cells, but the same round cells stained for fat proved that they are compound granular corpuscles and not typical round cells seen in infectious diseases of the nervous system. One has to be guarded in making a diagnosis of an infectious disease of the nervous system in the absence of carefully stained fat preparations.

DR. ARTHUR WEIL, Chicago: I have only two short remarks to make. The one is on the relationship between acute disseminated encephalomyelitis and multiple sclerosis to which Dr. Hassin referred. Drs. Putnam, McKenna and Morrison mentioned some excellent work that has been done on the comparative histologic study of these two diseases. Walthard pointed out that there is a definite difference in the histologic picture presented in the different types. It is known that the axons in multiple sclerosis are relatively intact and that the demyelination with glia proliferation predominates. In acute encephalomyelitis following measles, however, there is a severe destruction of the axis cylinders in the demyelinated areas, which, quite different from multiple sclerosis, are arranged perivascularly. I should also like to say some words with regard to Dr. Brickner's remarks. At present we can only define ferments and recognize them by their specific action, their sensitiveness to heat and their dependence of a given environment. Brickner stated that, if serum from multiple sclerosis patients acts on lecithin emulsions, a marked increase in acidity is noted. Oxalated plasma does not produce such a marked lecithin splitting action; it shows, however, marked demyelinating action on the spinal cords of rats. He concluded that the lecithin splitting ferment and the demyelinating agent are the same. The fact that addition of oxalate inhibits the action of the first but not the destructive action on the lipids of the myelin sheaths is not in favor of such a theory. Furthermore in my experiments with highly active pancreas extract I was never able to produce demyelination of rats' spinal cords with the lipases present.

DR. TRACY J. PUTNAM, Boston: In regard to Dr. Davison's question, fat stains show trifling amounts of fat—scarcely two or three cells about the vessel—not the great swollen fat cells that are common in areas of acute and marked degeneration. As to whether this process is an "itis" or "opathy" I don't pretend to say. As long as we agree as to the histologic sequence and as to the etiology, I am quite content to leave terminology to some one else. In regard to Dr. Hassin's comments, I think we are perhaps not as far apart as it seems. I do not say that the late stages of this myelin destruction exactly simulate all the lesions of multiple sclerosis; it would be rather remarkable, I think, if lesions produced in a year, at the most, would simulate the lesions of multiple sclerosis that have existed for five, ten or even twenty years. I do believe, however, that the later lesions with very little vascular infiltration, with practically no axon destruction evident, and with a rather lively gliosis about them, are much more suggestive of the milder lesions of multiple sclerosis than they are of any lesions, mild or intense, of the acute process which one sees within a month or so after an infectious disease. The lesions in my dog 8, which died spontaneously, closely resemble those in Walthard's case, for instance; but those in dog 37, killed after a year, reproduce in a mild degree all of the features shown in Dr. Hassin's slides and the illustrations of the article from which they are taken. I think that these experiments perhaps carry us a step nearer to multiple sclerosis and indicate that the difference is one of quantity and intensity rather than an entirely qualitatively different process.

Amount of Radioactive Substance Necessary to Destroy Life.—In order to indicate the infinitesimal amount of radioactive substance necessary to destroy life, the following illustration may be cited: A milligram of radium bromide is not much larger than a small grain of sand. One microgram is only one thousandth as large, is invisible, and cannot be detected by any known chemical method. It is necessary to have only ten micrograms, or one hundred thousandth of a gram, distributed over the entire skeleton to produce a horrible death years after it has been ingested. This is interesting when it is recalled that the fatal dose to man of the toxin produced by *Bacillus tetani*, one of the most powerful soluble poisons known, is 0.22 mg., or about 1/500 grain. Gettler, after examining the bones of a dial painter, exhumed five years after death for litigation purposes, in whom he found 50 micrograms or 1/20 of a milligram of radium distributed over the entire skeleton, made some interesting calculations. He estimated that one quarter of an ounce of bone from this painter contained about 1/50.000 of a milligram of radium. The number of atoms of radium present in this amount of bone was 5.0×10^{13} or 50,000 billion. For every atom of radium there were 600 million molecules of bone tissue. This one quarter of an ounce of bone ejected 1,000 alpha particles per second.—Martland, H. S.: The Occurrence of Malignancy in Radioactive Persons, *Am. J. Cancer*, October, 1931.

nor the case of Warfield[9] (one case in 1927), in which the condition occurred in an obese woman suffering with alcoholic neuritis.

One is impressed with the fact that in all the cases reported, except Warfield's, the patient had an acute inflammatory process requiring surgical intervention and the institution of drainage. Because of prolonged drainage and restricted diet they were all invariably in a very run down general condition when the ulcer appeared. It is also interesting to note that in 50 per cent of the cases the patient was 45 years old or over.

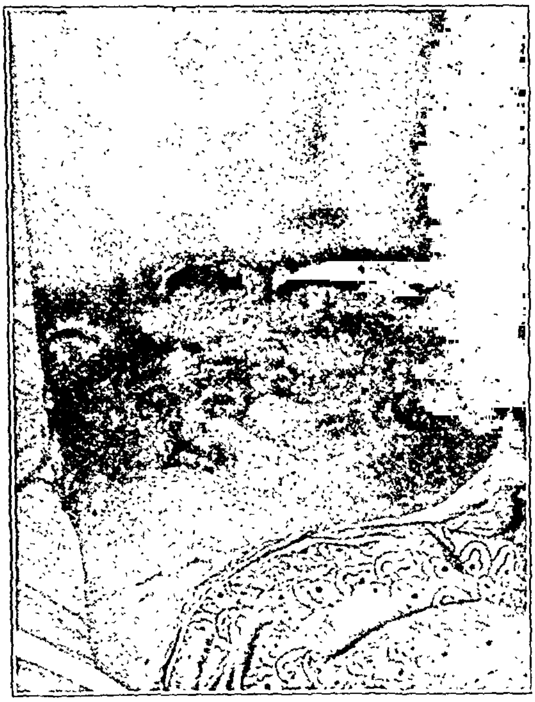

Fig. 1.—Spreading progressive gangrenous ulcer of abdominal wall.

It would be enlightening to know in how many of these cases an ice cap was applied to the abdomen following the operation. It cannot be denied that cold lowers the local resistance of the individual, and yet in some clinics the use of the ice cap postoperatively is a routine procedure. I, myself, am partial to the hot water bottle or electric pad.

No specific factor in producing these gangrenous ulcers has as yet been found. A number of different organisms have been isolated in the various cases reported. Cullen[1] found Streptococcus brevis; in the cases reported by Brewer,[10] the most thorough bacteriologic studies were made by Meleney.[10] This investigator was able to reproduce the ulcers in animals.

In the course of his investigation, he was able to find the nonhemolytic streptococcus, the hemolytic staphylococcus and a diphtheroid bacillus. When the first two were inoculated separately into animals, very little reaction occurred. When the streptococcus and Staphylococcus aureus were injected together, gangrene was produced. From these results Meleney[10] drew the conclusion that a "symbiotic function or a combination of functions of these two organisms may be necessary for the production of gangrenous ulcers. The rarity of its occurrence clinically may be explained by the necessity for the coincidence of two such organisms in the wound. The streptococcus is much more rare in its occurrence than the Staphylococcus aureus and might easily be overlooked in routine cultures."

In the case of Mayeda,[11] a diphtheroid bacillus was found and thought to be the causative factor in the production of the ulcer and to have reached the abdominal wall from the appendix. In Shipley's[12] case only a nonhemolytic streptococcus was isolated. Horsley[13] found the staphylococcus, streptococcus, colon bacillus and a diphtheroid bacillus. In the case forming the basis of this paper, there was found at the time of operation a streptococcus, and two months after operation, when the case first came under my care, Staphylococcus aureus and a bacillus having no specific reaction on sugar were found.

One of the most interesting cases reported is that of Cole and Heideman.[14] Their patient, a man, aged 34, had an appendiceal abscess drained. A gangrenous ulcer of the abdominal wall developed and in the course of their bacteriologic studies they were able to isolate an ameba. So closely did their case resemble all others reported that they are inclined to believe that the etiologic factor is the same.

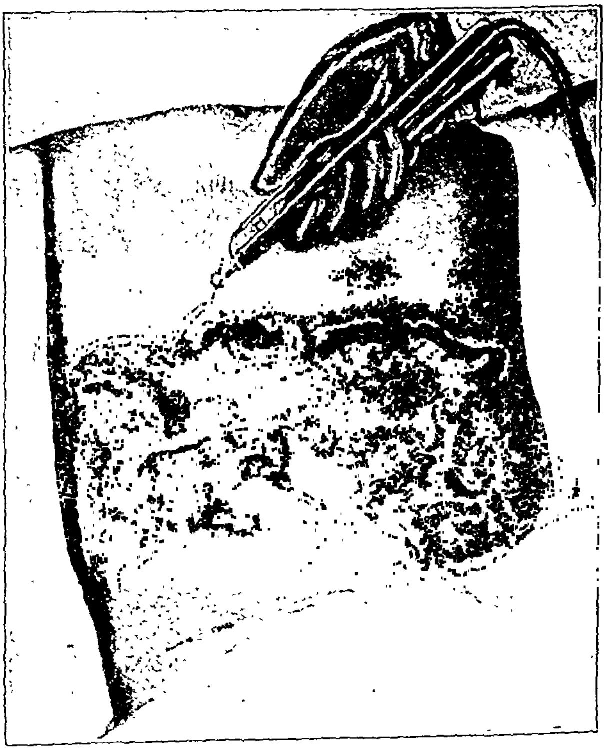

Fig. 2.—Method of cauterization, the cautery knife extending well into the healthy tissue.

However, the investigation of Meleney[10] did not bear out this conclusion, and a further consideration of his observations is most convincing. While he thinks that the streptococcus and staphylococcus are necessary for the production of these ulcers, he does not venture air and crepitation of the skin around the wound. Here the treatment must be prompt and heroic.

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[9] Warfield, L. M.: Ann. Clin. Med. 5:884 (March) 1927.

[10] Brewer, G. E., and Meleney, F. L.: Ann. Surg. 84:438 (Sept.) 1926.

[11] Mayeda, Tomosuke: Deutsche Ztschr. f. Chir. 196:311 (Nov.) 1926.

[12] Shipley, A. M.: Ann. Surg. 87:245 (Feb.) 1928.

[13] Horsley, J. S.: Intussusception Due to Intestinal Lipoma in Adult, Followed by Gangrene in Abdominal Wall, Arch. Surg. 18:882 (March) 1929.

[14] Cole, W. H., and Heideman, M. L.: Amebic Ulcer of Abdominal Wall Following Appendectomy with Drainage, J. A. M. A. 92:537 (Feb. 16) 1929.

PROGNOSIS

Of the twenty-one cases that have thus far come to my attention, two patients died, one, the oldest in the series, a man, aged 70, who developed pneumonia after the arrest of the gangrenous process. The duration of the condition from the time of onset to complete healing has varied from two to twenty-two months. The methods of treatment carried out have influenced the duration of the condition. While the mortality rate of the cases available is 5 per cent, there are no doubt other cases not reported which have been fatal and would therefore raise this rate; at least I think that a reasonable assumption.

TREATMENT

Before taking up what is considered the most efficient method of checking and curing this condition, I shall briefly review some of the agents that have been used in the treatment. While the first case reported by Cullen[1] in 1924 was under treatment in the latter part of 1922, the first case in which the condition was encountered was that of Clinton[15] in the Buffalo General Hospital in December, 1921. The treatment carried out here which finally proved effective was a 6 per cent solution of sodium chloride applied to the margins of the wound, after powdered arsphenamine had failed. Foreign protein in the form of milk has been tried with no encouraging results. The use of most of the antiseptics that every one has heard of has been disappointing and the use of heliotherapy of various sorts has been no more promising, except in the case of Gordon,[16] in which a quartz light was used. Probstein and Seelig[17] report beneficial results from the use of blood from immunized donors, in one case involving the chest wall. The agent which has given most prompt and encouraging results is the cautery. Cullen,[1] Brewer,[10] Porter,[15] Moschcowitz,[15] Shipley,[12] Ballin[8] and I have been able to check the process and prepare the ulcer for skin grafting when this was deemed necessary. In the use of the cautery or electrotherm knife the instrument should be passed through healthy skin well beyond the gangrenous edges. When the ulcer has been completely circumscribed the knife is then passed beneath the edges, freeing the zone between the cauterized incision and the margin of the ulcer. By means of the electrotherm knife this can be cauterized at the same time; if not, the cautery should be run over the raw surfaces. The latter procedure not only destroys the infection along the edges of the ulcer but checks any hemorrhage that might occur, and in some cases reported the bleeding has been quite troublesome. After this cautery excision, moist dressings should be applied and changed daily. Besides checking the progress of the pathologic process, a striking result after the removal of the gangrenous margin is the immediate cessation of pain.

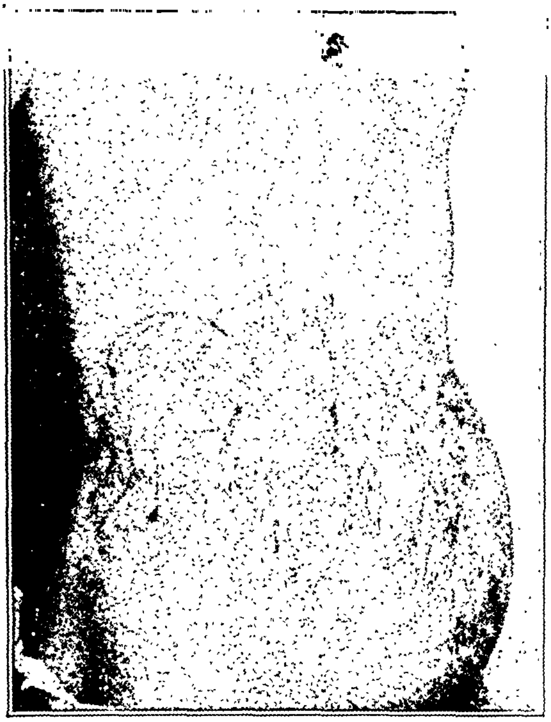

Fig. 5.—The ulcer completely healed showing the remains of the pinch grafts.

In all cases in which the cautery has been used, not only has the ulcer itself responded satisfactorily but the general condition of the patient has rapidly become vastly improved. The base of the ulcer in most instances has been in such good condition that skin grafting could be resorted to within a week or ten days. While skin grafting has not been found necessary by some, the utilization of this procedure has no doubt shortened the time of healing.

REPORT OF CASES

My first experience with this condition came in May, 1927, when there was admitted to the service of Dr. Shipley[12] at the University Hospital, Baltimore, a man with a large progressive ulcer of the abdominal wall. The patient had been operated on four months previously in another city for an appendiceal abscess. After admission, the entire area was painted with mercurochrome-220 soluble for six days without any noticeable improvement. As the cautery had checked the advancing ulceration in Cullen's[1] case, reported three years previously, this was used with beneficial results.

Two years after I had seen Shipley's[12] case there came into my service at the University Hospital, Baltimore, a man, aged 62, who two months previously had had an appendiceal abscess drained through a McBurney incision at another hospital. Two cigaret drains and two rubber tubes were used for drainage. No attempt was made to remove the appendix, and the incision was left wide open. The cultures from the abscess were negative, but the smears showed a streptococcus. The patient left the hospital one month after drainage of the abscess with slight ulceration about the wound. He returned home and in spite of frequent dressings and cleansing of skin the ulcer grew progressively worse. At the same time the abscess cavity healed. The patient was becoming more and more discouraged because he was getting no better and because of his dread of the change of dressings. This went on for five weeks, when he came under my care, Aug. 14, 1929. The temperature was 101.2 F.; pulse, 112; respiration, 20; red blood cells, 4,300,000; white blood cells, 15,000; hemoglobin, 65 per cent. The urinalysis and the Wassermann test were negative. There was present an ulcer extending from the posterior axillary line on the right across the abdomen to the anterior axillary line on the left, from the costal margins above to the pubis below. The scar of the operation was surrounded by skin, but the umbilicus could not be identified. Two days later, under gas and oxygen anesthesia, the entire ulcer was circumattention in another hospital in New York. This will be reported by Dr. Howard Patterson. I think that we are getting added information with every case to substantiate this theory. I should like to discuss quickly the slides of Dr. Brewer's case and Dr. Moore's case (which I am about to report in the *Annals of Surgery*) to show how we demonstrated the synergistic action of the bacteria in these cases. The streptococcus evidently is of intestinal origin. In Dr. Brewer's case it was found in pure culture in the exudate from the appendix abscess. In Dr. Moore's case the peritoneal exudate at first yielded the microaerophilic streptococcus with Bacillus welchii and Bacillus coli, but the last two disappeared from the wound while the streptococcus persisted. The staphylococcus appeared later. I believe that the staphylococcus came from the air, either at the time of the operation or some days later. The evidence of their combined activity did not appear until the second week. The streptococcus is the important organism, because that is found out in the periphery, in the advancing zone of the lesion, and because it is the first to appear in the lesion. The staphylococcus is not specific. Control strains of staphylococcus combined with the streptococcus may produce the lesion. We found that in our animal experiments these organisms must be inoculated at the same time. If the staphylococcus or the streptococcus is injected in pure culture on one day and the other organism on the next day, nothing takes place. It is the action of these two organisms working together which produces the lesion.

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[15] In discussion of Brewer and Meleney (footnote 10): Tr. Am. S. A. **44**: 408, 1926.

[16] Gordon, F. M.: U. S. Vet. Bur. Bull. **4**: 1045 (Dec.) 1928.

[17] Probstein, J. G., and Seelig, M. G.: Surg. Gynec. Obst. **47**: 247 (Aug.) 1928.

Dr. Thomas S. Cullen, Baltimore: Much can be gained by taking stock every few years of the accumulated cases of a supposedly rare disease. I have nothing to add to Dr. Lynn's careful analysis of these cases of progressive ulcer of the abdominal wall. The more recent investigations seem to show that amebas may be the causative factor in this class of ulcers. They appeared to be the cause in some cases observed by Dr. Barney Brooks of the Vanderbilt University at Nashville. The history of my case, which seems to have been the first recorded, was briefly as follows: H. M., aged 50, who had been ill for two weeks, was admitted to the Church Home and Infirmary, Sept. 27, 1922, with fairly definite signs of appendicitis. Midway between the costal margin and the region of the appendix was a globular mass about 10 cm. in diameter. The abdominal walls over it were edematous and the abscess cavity contained at least 100 cc. of grayish, nonoffensive pus. Two days after operation, the incision looked red and inflamed, and sixteen days later had been replaced by a widely ulcerated area. Five and a half weeks after operation, the ulcer was 12 inches (30.5 cm.) in width. The only organism found was Streptococcus brevis. Ulceration was finally checked by cutting the sloughing margins completely away with a cautery knife. As soon as a healthy wound had been obtained, pinch grafts were used. The patient is well today, over eight years after operation. The case is recorded in detail in *Surgery, Gynecology and Obstetrics*, May, 1924, page 579.

Dr. Frank S. Lynn, Baltimore: I wish to emphasize that the cautery is the ideal method of treatment in these cases. All forms of germicides are of no avail in trying to check or cure this form of ulcer. The cautery must be run through the healthy zone of tissue in order to get beyond the extension of the streptococcus which is in the necrotic zone. Furthermore, the period of duration of some of these cases has varied from two to twenty-two months, and in those cases in which the duration has been shortest the cautery has been used. I further wish to emphasize the fact that in the twenty cases of which I have been able to collect reports, fifteen occurred in males; and of the twenty cases, fourteen occurred following operations for appendicitis. In the last few days, in talking to some of my friends from various places, I have learned of five other cases, and four of those cases terminated fatally. In the twenty cases cited, only one patient died, the oldest in the series, a man, aged 70, who died some weeks after the healing of the ulcer. Since this paper was prepared, I have come across a case, reported by Dr. Leonard Freeman in *Transactions of the American Surgical Association* for 1930, in a woman, aged 39, who was operated on for cholecystectomy without drainage. This patient also died. Postoperative gangrenous ulcer of the abdominal wall is much more serious than is indicated by the statistics.

HEREDITARY JUVENILE GLAUCOMA SIMPLEX *

ROBERT H. COURTNEY, M.D.
AND
EMORY HILL, M.D.
RICHMOND, VA.

Among the hereditary diseases of the eye, glaucoma has a place. Benedikt,[1] in 1842, reported the case of an elderly man with gout and glaucoma. Two daughters of this man had glaucoma; they were dark eyed. One son had gout but escaped glaucoma because he was blue eyed. The relationship of gout to glaucoma was discussed by Bull[2] in 1909. The word "gout" seems to have covered a multitude of sins in the older days. The predisposition of dark eyes to glaucoma has been mentioned by many authors. Thus, Lange[3] in 1887 quoted Rydel, Rosas, Sichel and von Arlt as believing that glaucoma occurs in the brown eyed in the majority of cases. Lange doubted the correctness of this belief but asked whether the darker iris with its greater content of pigment might not be thicker than the light iris and impinge more on the angle of the anterior chamber. A member of the family remarked that she feels perfectly safe because she has brown eyes and only the blue-eyed members of her family have glaucoma (an inaccurate statement, as was afterward discovered both by our own observation and by that of the father of our patients who knows the family history most thoroughly).

Von Arlt[4] in 1856 said that he knew glaucoma to be inherited. He reported cases of a mother and her sisters, a daughter and mother, and a man with a father and two brothers. Under the heading "Choroiditis ex dyscrasia venosa (ophthalmia arthritica et glaucoma auctorum)" he said, "Glaucoma is the most frequent form of choroiditis and is also in general no rare disease of the eyes." This seems a strange title today, but perhaps no more strange than our gropings for the meaning of glaucoma may seem in the future to a generation which knows more of its etiology. Mooren[5] in 1867 said: "It seems almost as if glaucoma can be inherited. I have seen it in two sisters and in three sisters and a father." Other writers (Stellwag,[6] Pagenstecher[7] and others) usually dismissed the subject with a quotation from von Arlt.

Von Graefe[8] in 1869 emphasized the fact of "anticipation," meaning that the disease occurs earlier in succeeding generations. He referred to a mother and daughter who were attacked in the same year, there being twenty-six years difference in their ages. He thought the acute form more often inherited and the secondary type more apt to be associated with those developmental disturbances which act as predisposing factors (dislocation of the lens, sclerectasia posterior, cornea globosa). This does not accord with the present use of the word "secondary." Indeed, there was no very accurate classification made in the older literature, and one cannot be sure whether the chronic glaucomas were of the primary or secondary type, nor just how chronic glaucomas with acute or subacute attacks were

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* Read before the Section on Ophthalmology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Benedikt: Abhandl. Augenh., Breslau, 1842, p. 123.
2. Bull, C. S.: Prognosis and Treatment of Deep Lesions of the Eye, M. Rec., Dec. 19, 1908; abstr. J. A. M. A. 52:72 (Jan. 2) 1909.
3. Lange: Glaukom und Myopie, Jahresb. Ophth., 1887.
4. von Arlt, F.: Die Krankheiten des Auges, Prague 2:190, 1856.
5. Mooren, A. [illegible], Berlin, 1867, p. 196.
6. Stellwag: [illegible] mologie, 1855.
7. Pagensteche [illegible] Wiesbaden, 1861.
8. von Graefe, [illegible] 1869.

The intelligence of the family under consideration would easily be considered well above the average, if not superior; yet one is inclined to wonder why they have continued to breed large families in the face of a recognizable hereditary disease. This is explainable through the theological training of the five generations.

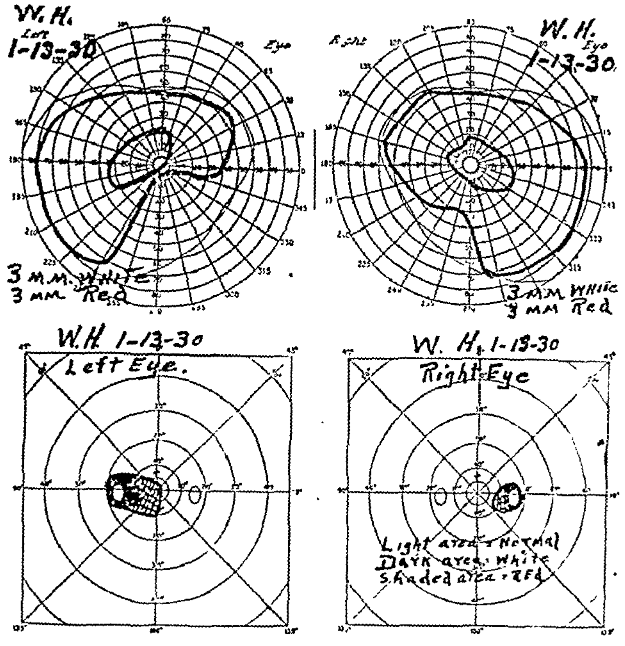

Fig. 2 (case 2).—Visual fields taken at time of first examination.

In the first place, wedlock is sanctioned for the begetting of offspring, and there is no law against wedlock among the Laws of Moses except among those who are at the moment unclean. Should such an unclean one enter wedlock, then it is prophesied that the sins of the father shall be visited even unto the third and fourth generation. In this belief the family has found comfort and cannot become reconciled to a visitation unto the fifth generation.

INDIVIDUAL HISTORIES

Case 1.—J. W., a man, aged 45, a member of the fourth generation, submitted to examination through courtesy. He stated that he had first noticed some failure of vision at the age of 19 and three years later bilateral iridectomies were performed. Because of continued failure of vision, another surgeon did bilateral trephine operations four years later. He was last examined, March 22, 1931. Vision in the right eye was reduced to perception of hand movements, and vision in the left to about 5/200 eccentric in the temporal field. The right cornea measured 11 mm. in both meridians and there was a dense scar in the posterior layers of the cornea which the patient stated had been present since the iridectomy on that eye. The left cornea measured the same and was clear. The anterior chambers were of normal depth. The irides, bluish gray, showed wide colobomas apparently extending to the roots. The disks were deeply cupped and atrophic.

Case 2.—W. H., a youth, aged 15, was brought to us for an opinion in regard to the choice of operation for glaucoma, Jan. 13, 1930. Three months previously he had noticed some failure of vision in the left eye and more recently some failure of the right eye. An operation for glaucoma had already been advised and the father was concerned about the type of operation to be performed. The surgeon having care of the case preferred an Elliot trephine, but the father was convinced that an iridectomy was the operation of choice because previous members of the family had done so well with this type of operation. At this time the patient had visual acuity in the right eye of 5/15 and in the left eye of 5/22. The refractive error amounted only to a little mixed astigmatism without cycloplegia, and correction did not improve the vision. The visual fields showed a rather marked limitation for form and red, down and nasalward, this defect practically reaching fixation in the left eye. The blind spots were enlarged for form and much so for red (fig. 2). The fundi showed typical glaucomatous cupping of the disks with some atrophy of each nerve. The tension in each eye was 42 mm. (Schiötz). The corneas measured 11 mm. in both the horizontal and vertical meridians; the anterior chambers were of normal depth, and no abnormality of the angle could be seen with the slit lamp; the irides were bluish gray and the pupil in ordinary sunlight measured 7 mm. The opinion was expressed that the Elliot trephine offered the best results. The patient returned, March 28, stating that he had had an operation elsewhere on the right eye, February 1. It appeared that a trephine with a peripheral iridectomy had been done, but unfortunately the lens capsule must have been perforated because the lens was swollen and cataractous, the cornea steamy, the anterior chamber shallow and the tension greatly increased. At this time there was bare perception of light in the temporal field in the right eye. The vision in the left eye at this time was 5/22, with the form field contracted, nasally, to fixation (fig. 3). The patient was not seen for two and one-half months, i. e., June 18, at which time his father brought him to us for an operation on the left eye. At this time there was a slight amount of lens cortex remaining in the right eye, the vision was reduced to perception of hand movements in the temporal field, and the tension was 24 mm. (Schiötz). The vision in the left eye was now 5/30, the nasal contraction of the visual field had now overlapped the point of fixation as shown in the chart, and the tension was 40 mm. (Schiötz). On the same date a deep iridectomy beneath a conjunctival flap was performed (Reese method). Convalescence from this operation was uneventful except that the anterior chamber did not reform for four days. Six weeks later the remaining portion of the lens cortex in the right eye was needled and subsequently it all absorbed. During the past eight months there has been no change in either eye. The right eye now has a black pupil; vision is reduced to perception of hand movements in the temporal field, and the tension is normal. In the left eye, vision equals 5/30; the peripheral field remains as described previously, and the tension varies from 20 to 24 mm. (Schiötz).

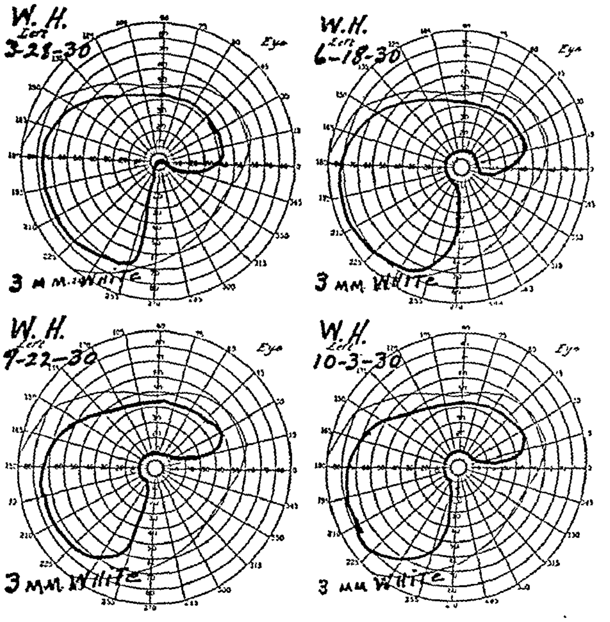

Fig. 3 (case 2).—Visual fields of left eye. Right field reduced to hand movements in temporal field. The chart, dated June 18, 1930, was taken at the time of operation on the left eye.

Case 3.—H. C., aged 23, a brother of W. H., M. F. and M. G., had been having failing vision for seven or eight irritability of secretory nerves, arteriosclerosis) or some cause lying in the general constitution which can lead, through the excitability of vasomotor centers and circulatory disturbances, to increase of intra-ocular tension.

Our family would seem to have glaucoma as a dominant character, one half of the descendants in five generations being attacked by the disease.

CLASSIFICATION OF HEREDITARY GLAUCOMA

We have quoted von Graefe's belief that acute glaucoma is more often inherited than is the chronic type. Haag [14] found this to be true in a series of sixty-seven cases, the congestive type appearing twice as often as glaucoma simplex. Holland [15] reports six individuals in three generations in India, all having bilateral congestive glaucoma. On the other hand, Löhlein,[11] tabulating the reports in the literature, found that in 1,640 cases of juvenile glaucoma, 18 per cent were acute and 82 per cent chronic. In his own series of 140 eyes, 7 had glaucoma absolutum, 24 acute or subacute, and 109 had chronic glaucoma. Lawford [16] found the inherited cases usually of the chronic form.

Classification is difficult in such a subject. What age limit should be fixed for "juvenile" glaucoma? What associated abnormalities may be disregarded and what accepted as causative factors? Is a glaucoma accompanying slight defects manifest in one or more structures of the eye a "primary" or a "secondary" glaucoma? Nettleship [17] divided glaucoma of early life into (1) buphthalmos; (2) glaucoma secondary to keratitis or sclerokeratitis, usually in inherited syphilis; (3) primary glaucoma in children or young adults (under 30 years). Fuchs, in discussing Löhlein's paper, offered the following classification of juvenile glaucoma: (1) chronic glaucoma with shallow anterior chamber, occurring in early life, identical with the glaucoma of age, hereditary and familial; (2) glaucoma following congenital anomalies, in the same class with hydrophthalmos, also hereditary and familial; (3) glaucoma with deep anterior chamber, in myopic eyes; (4) glaucoma with deep anterior chamber and fine keratic precipitates, secondary, but may be confused with the primary type because of the scarcity of keratic precipitates.

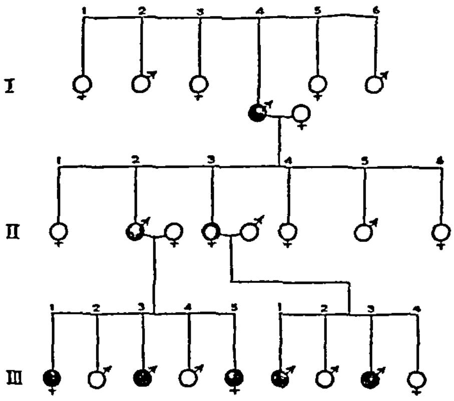

Fig. 7.—Pedigree of Howe's patient.

The third type of both Nettleship and Fuchs corresponds to that which is reported in our family history.

Löhlein [11] believes that there is a group of glaucomas occurring in the young, especially under 40 years, that differs in no way from the usual glaucoma but is different from the congenital and other youthful glaucomas which are due to disturbances of development and are not acquired conditions.

ASSOCIATED CONDITIONS

Although cases of hereditary glaucoma appear in eyes entirely free from other visible defects, there are many cases in which there seems to be a relationship between the glaucoma and certain developmental faults. Coloboma of the nerve head is described with glaucoma (Müller-Kannberg,[18] Bäumler [19]). Schmidt-Rimpler [13] said that 50 per cent of juvenile glaucomas have a faulty Schlemm's canal. Löhlein [11] asked whether juvenile glaucoma may not be a form of buphthalmos in which the congenital anomaly of the chamber angle is not sufficient to produce a full blown buphthalmos. He found the following conditions present in his cases: persistent pupillary membrane with disturbance of the anterior capsule of the lens, partial lamellar cataract, coloboma of iris and lens, unusually large lens (anatomic examination), abnormally large cornea, staphyloma of sclera, microphthalmos, excessive hyperopia, retinitis pigmentosa, and nevus of the lid and conjunctiva. Veasey and Shumway [20] also found an abnormally large lens and a heavily pigmented iris, the anterior surface being like the normal posterior layer of this structure. Priestley Smith's [21] well known insistence on the larger lens of age is pertinent here. He found in two cases large lenses and small eyes with small corneas. He emphasized the fact that the lens is of ectodermal origin, being independent of the mesoderm, which begins its development later and ends it sooner, while the lens continues its growth. Therefore, the factors which make for a small eye do not check the growth of the lens.

GLAUCOMA AND MYOPIA

It is quite evident that the preponderance of hyperopia over myopia in glaucomatous eyes in general does not hold good for the chronic form, especially in youth. Löhlein [11] found approximately 50 per cent of glaucomatous eyes in young people to be myopic, and about one third of these had myopia of more than 6 diopters. Haag [14] found only 20 per cent hyperopic (in sixty-seven cases). Nearly two thirds of Nettleship's [17] patients were myopic. He found that when myopia and glaucoma occurred together the glaucoma began very early in life in over half of the cases. He referred to the antagonism of both youth and myopia to glaucoma and asked the question whether myopia predisposes to glaucoma or both conditions follow some local cause. Van Graefe [8] had asked the same question, having observed that about one third of his cases of glaucoma simplex occurred in myopic eyes. In a later discussion of the subject (1906) Nettleship [22] said: "Although I think there is reason to believe that myopia in the child may to some extent take the place of glaucoma in the parent, the general enlargement of the sclerotic by no means always acts as an efficient

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14. Haag, C.: *Das* Glaukom der Jugendlichen, Klin. Monatsbl. f. Augenh. **54**: 133, 1915.

15. Holland, H. T.: *Hereditary Glaucoma* Affecting Three Generations, Indian M. Gaz. **59**: 408 (Aug.) 1924.

16. Lawford, J. B.: Examples of Hereditary Primary Glaucoma, Royal London Ophth. Hosp. Rep. **17**: 57, 1908.

17. Nettleship, E.: *Glaucoma in* Early Life, Royal London Ophth. Hosp. Rep. **12**: 220, 1888.

18. Müller-Kannberg: Vererbung des Glaukom, Klin. Monatsbl. f. Augenh. **32**: 173, 1894.

19. Bäumler: Ueber Glaukom Adolescen, Klin. Monatsbl. f. Augenh., 1907, p. 445.

20. Veasey, C. A., and Shumway, E. A.: Simple Glaucoma in the Young, Ophth. Rec. **13**: 15, 1904.

21. Smith, Priestley: On an Instance of Hereditary Glaucoma, Ophth. Rev. **13**, 1894.

22. Nettleship, E.: Some Hereditary *Diseases of the Eye*, Ophthalmoscope **14**: 549, 1906.

thought that the results in early cases, which did not show optic atrophy, were very gratifying, while those with atrophy could be arrested in a measure. He thought that the trephine was superior to simple iridectomy, or sclerectomy with the iridectomy of LaGrange. Werner[28] believes that a fistulizing operation is superior to iridectomy.[29]

Our two cases, in one of which an iridectomy was performed twelve months ago, and in the other a LaGrange sclerectomy with iridectomy on the right eye and an iridectomy on the left six months ago, appear to be checked but without improvement of central vision or fields.

SUMMARY

1. It seems clear, both from a review of the literature and from a study of the family reported, that there is a definite type of glaucoma which is hereditary.
2. This type of glaucoma occurs usually in the second or third decade of life and is not accompanied by the recognized conditions occurring in glaucoma of later life; i. e., small corneas, shallow anterior chambers, ametropia and large lens; nor is it associated with other congenital defects, such as aniridia and colobomas.
3. It is probable that the glaucoma factor is dominant over the factor for normal eyes and follows the same hereditary laws as brown irides.
4. While the hereditary type of juvenile glaucoma logically falls into the classification of chronic glaucoma to distinguish it from the acute congestive type, it must be recognized that the disease in reality runs a rather rapid course and that early diagnosis and early surgical intervention are essential.
5. There is no definite evidence that the disease can be influenced by miotics or other hypotensive drugs.

501 East Franklin Street.

ABSTRACT OF DISCUSSION

Dr. Edward Shumway, Philadelphia: I desire to place on record the history of a family in which juvenile glaucoma occurred in four successive generations. The first patient was a woman who at 20 years of age went entirely blind from glaucoma. No operation was performed. She had five children, three males and two females. All the males are still living, two with good vision after correction of a considerable degree of myopia. The third male developed glaucoma at an early age and is the fourth on the list. The second patient, a daughter of the first patient, developed glaucoma at 17 years of age. She was operated on sixty years ago but did not see after the operation. She is still living, both eyes showing advanced phthisis bulbi. The third patient, her sister, began to lose her sight at 13 years of age; iridectomy was done on each eye. Twenty-three years later the right eye showed a ciliary staphyloma with a vision of light perception. The left eye had a vision of 20/50 with correction, and the eyeground examination showed a deep cupping of the optic nerve, which was atrophic. Vision subsequently failed, but the patient retained sufficient sight to get around the house. The fourth patient, a brother of the second and third patients, began to lose sight at 14 years of age. In one year the right eye was blind. The left eye became affected and was operated on but both eyes became totally blind from glaucoma, and the right eye was removed thirty-two years ago. At present the left eye shows phthisis bulbi. The fifth patient, the daughter of the fourth patient, represents the third generation. Glaucomatous symptoms appeared when she was 15 years of age. Both optic nerves developed deep cupping and the tension became increased. Despite the use of miotics, vision gradually failed and the visual fields became contracted. Operation was refused and myopia developed. By the time she was 22 years of age she was totally blind and large ciliary staphylomas appeared. She came under my care one year ago, and because of the deformity and the discomfort occasioned by the large staphylomas she asked for double enucleation, which was performed. Microscopic sections of the posterior halves of the eyes show complete cupping and atrophy of the optic nerves. The sixth patient, the daughter of the fifth patient, representing the fourth generation, is now sixteen years of age. At 5 years of age she showed small central cups of the optic nerves, with hyperopic astigmatism and normal vision. Since I have had her under observation, during the past year, both nerves have shown deep and nearly complete cupping, but the visual fields are full and the tension tested by the Schiötz tonometer is 28 in the right and 25 in the left eye. She uses pilocarpine regularly, and, with Dr. de Schweinitz's advice, operation has not been proposed. All the patients developed the disease before the sixteenth year, and with the exception of the last one, who is only 16 now, all gradually lost their sight, with or without operation.

Dr. John O. McReynolds, Dallas, Texas: It has been my observation that the condition observed and presented in this article is not a frequent one in our country. The cases developing in the second and third decades of life have been exceedingly infrequent. They do actually occur, but the most frequent form that we have observed and which could be properly called hereditary glaucoma has developed in the first decade of life and has participated in the characteristics of buphthalmos. Of course congenital hydrophthalmos is a condition depending essentially on anatomic changes in the eye, whereas the other forms of glaucoma described by the authors may depend on various causes, as brought out so well by Drs. Magitot and Duke-Elder and others. I am impressed with the fact that a full explanation of many of these cases has not been found but that they depend on anatomic changes in the eyeball and on differences in the nervous system and on certain nutritional disturbances not clearly understood. I have in the Scientific Exhibit today a moving picture of a case that illustrates this type. This little girl is 5 years old. The mother, father, grandfather and aunt were all blind, probably from glaucoma. Both eyes have been operated on. She first had glaucoma and later she developed cataract. The removal of the lens has been helpful in improving the vision and in relieving the condition of glaucoma. Just in passing I would say, with reference to treatment, that these patients are entitled to the same well established plan of treatment to which other glaucomatous patients are entitled. They should have the benefit of medical treatment, and of those surgical measures found effective in nonhereditary glaucoma.

Dr. J. W. Jervey, Greenville, S. C.: From clinical observation, I have come to believe that there is an hereditary tendency in all forms of glaucoma. It is difficult to say what should be termed "juvenile." Some place the deadline at 40 years. Drs. Courtney and Hill intimate that 30 years is the age after which glaucoma ceases to be juvenile. They stress that this form of the disease lacks the usual concomitant anatomic variations of ordinary glaucoma, such for example as shallow anterior chamber, as well as certain congenital defects. As for myopia being a predisposing factor, it is easier for me to believe that a high intra-ocular tension with the elasticity of the youthful eyeball is of a certain potentiality in the production of myopia which may even prove compensatory of the high tension; while a stiff and rigid sclera would be an added factor in continuance or increase of the glaucoma. One thing appeals to me as certain, so far as experience and reasoning can teach me, and that is that if our present-day conception of the physiology of intra-ocular drainage is correct, then no ordinary iridectomy need be expected to reduce tension satisfactorily (save by the happy chance of an unexpectedly filtrating wound) in an eye with a deep anterior chamber and thereby a presumptively open canal of Schlemm. In such an eye additional and complementary drainage must be obtained by means of one of the fistulizing operations. This distinction as to the choice of operative procedure in glaucoma should always be borne in mind. Any departure from its consideration is illogical, and any good operative results following the ignoring of these mandatory conditions are purely accidental. I note that in one of the two

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[28] Werner, S.: Acta Ophth. 7:162, 1929.

[29] Further references may be found in Löhlein's paper, in Parson's Pathology of the Eye, 4:1409, and in the exhaustive bibliography in A. Peters' recent monograph, Das Glaukom, which is part of the third edition of the *Graefe-Saemisch* Handbuch der Augenheilkunde, page 161.

Other symptoms of a more grave character, such as those of spondylitis, osteomyelitis, pyonephritis, and abscesses located in various other organs, many of which terminate fatally, may also originate from a single focus in an organ, which has been overlooked in the search for the origin of the infection.

As already stated, the symptoms of autointoxication have been generally recognized as some disordered condition of the intestinal canal, and under proper therapy many cases have responded to treatment. What has not been generally recognized, however, is the fact that there is an area at the terminal portion of the intestinal tract that is a ripe and fertile source of focal infection.

I refer to the crypts of Morgagni, which are located at the junction of the anal canal and the rectum. These crypts normally secrete a thick mucus, which serves as a lubricant to the feces just before their extrusion from the anal canal. They vary from three to twelve in number and are recognized as openings in the mucous membrane, usually crowned by small papillae. When diseased, these crypts are red and the papillae are pinkish white, enlarged and elongated, sometimes polypoid.

On examination through the anoscope with a hook-shaped probe or with one with a right-angled end, one can readily identify these crypts. Often times, pus can be demonstrated in the crypts, and not infrequently a sinus or a blind internal fistula will be found leading from a diseased crypt. These sinuses will vary in length from one-half inch to 2 inches (1 to 5 cm.) and extend usually in a radial direction from the crypts.

The crypts are large and more numerous and of greater capacity than tonsillar crypts. They infrequently cause any local symptoms; but when they do, the symptoms are quite characteristic. On account of the openings or mouths of the crypts being directed upward in a direction opposed to the fecal current, it is easy to see how irritating particles, such as bran, bits of bone, egg-shell, oyster shell, vegetable seeds and skins, toothbrush bristles and other bits of foreign material are forced into the crypts during the expulsion of fecal matter.

When material such as this becomes lodged in a crypt, it acts as a foreign body and irritant and causes ulceration followed by suppuration and absorption. It is with difficulty that any of these particles are dislodged, and they usually remain and either disintegrate or irritate the crypts and traumatize them, as has been mentioned. What a fertile source of infection there is in this natural incubator! Anal cryptitis is probably the most frequently overlooked source of focal infection that is present in the human body today.

It is a very simple matter to include in the examination of the patient the anoscopic examination previously mentioned. The proctologist who indulges in this as a routine will be rewarded by not infrequently being the first to discover that an anal cryptitis or a perianal sinus is a source of infection that has produced symptoms such as are illustrated by some of the cases which I will here briefly report.

Case 1.—Mrs. J. V. B., aged 23, had a complete tear following the birth of her child two years previously, requiring a perineorrhaphy. She had had considerable irritation in the rectum and some mucopurulent discharge. She stated that she was operated on by a doctor for hemorrhoids, but the discharge returned after the operation and she then consulted an irregular advertising sanatorium guaranteeing "a cure of all diseases of the rectum without operation or hospital confinement or the use of anesthesia." She treated with this concern for several months and not only felt no improvement but noticed that she was getting worse. For several months she noticed that she had so-called rheumatic pains in the legs and left arm but did not associate these with the rectal condition. She consulted me for the relief of the rectal condition, and examination disclosed five ulcerated crypts and a small rectovaginal fistula. The rectovaginal fistula was repaired under caudal anesthesia and at the same time these ulcerated crypts were incised and drained.

Three months after the operation, which was successful in disposing of the rectovaginal fistula, anal irritation and discharge, the patient volunteered the information that she had gained 32 pounds (14.5 Kg.) and that the pains in the arm and in both limbs had entirely disappeared.

Case 2.—Mrs. W., aged 40, was decidedly neurotic. She suffered from insomnia, indigestion, intercostal pain, and so-called muscular rheumatism of the arms and legs. She had frequent attacks of dizziness, sometimes accompanied with nausea, and was inclined to be very despondent. Her tonsils were normal, as were her teeth. She had some headaches which suggested to her physician the possibility of sinus infection. Both roentgen examination and transillumination failed to disclose any pathologic condition in the sinus. She consulted me for the treatment of what she thought was intestinal indigestion. The anoscope revealed several infected crypts surmounted by large fibrous papillae. Excision of these under local anesthesia was accompanied by a startling change in the woman's whole condition as well as in her outlook on life. Her husband has informed me that his wife is a different woman, and it seems almost incredible to him that such an operation, so easily performed, could work such a marked change.

Case 3.—Dr. H. suffered from high blood pressure and an arthritis, involving particularly the right hand, for a number of years. He had had dental attention, and the tonsils had been removed as possible foci of infection, without much relief. He consulted me on account of a burning sensation in the region of the anus. Anoscopic examination disclosed an infected crypt in the left anterior quadrant into which a small abscess, beyond the margin, was draining. Pus could be expressed from this on slight pressure. This was opened under local anesthesia, and within forty-eight hours the patient was able to close his hand with comfort, something he had not been able to do for two years previously. Recovery was prompt and satisfactory, and all symptoms of arthritis have disappeared.

Case 4.—Mrs. H., aged 29, had been a semi-invalid for about a year. Headaches, evening elevation of temperature and gastro-intestinal distress date back to the time when she had an ischiorectal abscess opened by her family physician, a year before. This had apparently healed, but she still noticed pus appearing from the rectum with the stool. Examination disclosed an internal sinus opening into the left posterolateral quadrant. Stereoscopic roentgenograms, after injection with bismuth, showed a sinus 4 inches (10 cm.) in extent. This was opened radically under local anesthesia. With the healing of the wound, all the symptoms disappeared.

Case 5.—Dr. X, a busy specialist who, while advising others to recreate, to pursue diversion and to diet carefully, does none of these things himself, noticed that he appeared to be slowing up mentally as well as physically. He had sleepless nights; the bowels were somewhat constipated and he complained of urinary disturbance, loss of appetite, and dizziness. He noticed the appearance of an erythematous eruption at various places on his body. He experienced some relief from all the symptoms after alkaline enemas and saline cathartics. He had his tonsils removed and sinuses examined, with negative results. He consulted me for examination and treatment for hemorrhoids, which he knew he had. Examination demonstrated the presence of chronic internal hemorrhoids and also two deep infected morgagnian crypts. The surrounding mucous membrane was congested and angry red, and secretion could be demonstrated in the crypts. Excision of the crypts under local anesthesia soon removed all the symptoms.

Case 6.—Mr. M., aged 29, complained of recurrent attacks of appendicitis and pain in the region of the coccyx. He had been operated on by another surgeon for the removal of his appendix five months before. At that time, he asked the surgeon to investigate the condition of his coccyx, as he had been having trouble with it for several years. Roentgenograms were

RECTAL AND ANAL INJURIES FROM CERTAIN FOODS AND INGESTED FOREIGN BODIES *

DESCUM C. McKENNEY, M.D.
BUFFALO

Injuries to the lower part of the rectum and to the anal canal from certain foods and from foreign bodies, especially small ones ingested with food, are of sufficiently frequent occurrence to merit consideration. I shall not attempt a review of the literature to show all such articles that have been found but shall rather try to show the seriousness of the damage done and the course of the resulting infection.

One wonders how some of the articles found could possibly have escaped detection during mastication. Their presence is made known when such a body is hard, comes between the teeth, or impinges on the sensitive lining of the mouth. In this way many such articles are discovered and extruded before harm is done, yet many are swallowed unconsciously or, perhaps, consciously when too far down to be returned to the mouth.

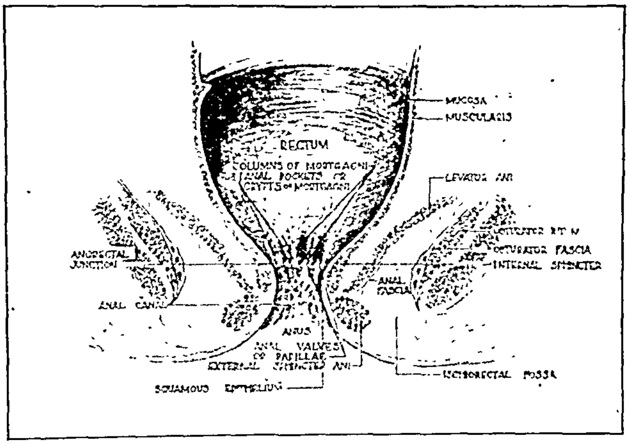

Fig. 1.—Anatomic features of the lower rectum, anal canal and anorectal junction predisposing to injury and infection.

A knowledge of the sensation of the upper part of the digestive tract will help in the understanding of such accidents. Sensation is marked in the tip of the tongue, the anterior part of the roof of the mouth and the pharynx down to the cricoid cartilage. This sensation protects the patient to a great extent. The esophagus is insensitive to touch, heat or cold until its lower end is reached. It is, however, sensitive to distention, which is a muscle sense, but seldom does any object, large enough to cause distention before reaching the lower end, get into the esophagus.

When dentures are used, the sensitive areas around the gums and the roof of the mouth are covered, so foreign bodies are not felt. Sometimes dentures are so uncomfortable that the wearer, to prevent pain, voluntarily avoids thorough mastication and so swallows the food unprepared. Incomplete and hurried mastication tends to permit the unconscious ingestion of foreign bodies; and, where teeth are missing, foreign bodies, by not falling between opposing teeth, escape detection.

Foods containing seeds, such as huckleberry, fig, raspberry, gooseberry, loganberry, strawberry, elderberry, thimbleberry, caraway, tomato and cucumber, are part of everyday diet. Seeds of the apple, grape, watermelon and orange are less frequently swallowed. Many people eat the cores of apples and some even parts of the stems.

It is not unusual to obtain a history that, during mastication, pieces of oyster shell, sand, nut and egg shells, and even perhaps small pieces of glass are crushed between the teeth and sometimes knowingly swallowed, the eater thinking that they are small and will do no harm; or perhaps, when at the table with others, the person swallows them to avoid the embarrassment of leaving the table or removing them from the mouth.

Corn on the cob, especially when overripe, popcorn, poppy seeds and nuts, particularly peanuts, are injurious, either as small hard particles or as a mass when eaten in quantities.

Recently a company established a chain of brilliantly illuminated and attractive popcorn stands throughout our city. Heralding them as an adjunct to proctology, I have not been disappointed.

Small fruit stones, such as that of the olive, cherry, plum and peach, as well as pieces of gristle are at times accidentally swallowed. These are prone to form the nucleus of a fecal impaction or enterolith.

Splinters of wood and pieces of bone, such as the bones of chicken, fish and mammals (the latter broken into small bits when meats are chopped or sawn by the butcher) are also accidentally swallowed. Very small children, when creeping on the floor, pick up and swallow all kinds of articles, such as tacks, marbles, pins, needles and pebbles. Larger children at play carry toys and small articles in their mouths and accidentally swallow them during exertion. Toothpicks are swallowed by those who have the habit of chewing them. Toothbrush bristles and chips from glass fruit jars, enamel ware and nickel-plated ware, pieces of the fingernails of fingernail biters, tacks, nails and pins furnish additional foreign bodies. A small hardened collection of feces may form in an anal pocket and act as a foreign body.

The articles just mentioned are small and, fortunately, most of them, being surrounded by feces, go through the intestinal tract and are evacuated without doing any harm. Some cause injury, which may or may not be followed by infection, and pass on. Still others become lodged during their passage, cause injury and ulceration, remain for a time, and then, in the purulent discharge which forms, are extruded, so that when the patient is examined only the damage done by the foreign body is found. Not all foreign bodies, however, after doing harm, are evacuated. I have found in situ a considerable number known to be the injuring agent. Clinical proof locates the origin of about 85 to 90 per cent of the lesions due to infection in the lower part of the rectum and in the anal canal near the anorectal junction. These facts emphasize the importance of small foreign bodies in the study of the etiology of rectal and anal conditions characterized by infection. The likelihood of foreign bodies being caught in the tissues and remaining as evidence of the damage they do is admittedly slight, but in view of the number found in lesions it must be conceded, first, that an innumerable number must pass through the intestinal tract harmlessly, and, secondly, that a considerable number may do damage without being discovered.

To understand why injury does take place most often at or near the anorectal junction, it is necessary to

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* Read before the Section on Gastro-Enterology and Proctology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June [illegible] 1931.

or it may subside until the passage of the next hard stool, when it is made worse. Sometimes the patient himself with his finger is able to dislodge the offender, but generally a physician has to come to his aid. If it is not removed, it may penetrate the bowel wall, form an abscess in the deeper tissues, and be followed by a sinus or fistula. A foreign body, like a sliver of bone or nail, when over 3 cm. in length is very apt to get one end caught in a pocket and, by pressure of the feces from above, have the other end forced against the opposite side, puncturing the bowel in two places. I had one such case in which two ischiorectal abscesses were formed and later two anorectal fistulas.

Some of the ingested foreign bodies which I have removed from lesions in the lower rectum or anal canal are:

Pieces of apple core.
Fish bones.
Splinters of bone.
Chicken ribs.
Seeds: poppy, psyllium, caraway, fig, tomato, cucumber, apple, grape (great quantity in one patient).
Splinters of wood.
Pieces of wooden toothpicks.
Toothbrush bristles.
Hardened feces.
Pieces of egg shell.
Piece of lobster shell.
Fish scale.
Pieces of enamel from granite ware.
Pieces of plating from a table knife.
Child's beauty pin.
Pieces of fingernail.
Peach stone splinter.
Piece of glass.
Husk of oat grain.
Piece of bone, resulting from necrosis of the patient's own rum.

The lesions in which the foreign bodies mentioned were found in frequency of occurrence, are:

Anal pockets or crypts.
Sinuses.
Fissures or ulcers.
Abscesses.
Fistulas.
Stricture.

The objects that were found free in the lower rectum were:

A penny.
Safety pin.
Peach stone.
Gallstones.
Pieces of gristle.
Impacted feces.

It is quite possible that in some instances the foreign body which caused the original injury escaped and that the one found was a secondary invader.

The most common offender is a piece of apple core, which, on account of its hardness and thin cutting edge, is easily caught in the lower part of the rectum and is prone to form a deep wound.

Next in my experience are pieces of bones. A fish bone was found 5 inches from the internal opening of a horseshoe fistula.

Third in frequency are small seeds, which are sometimes found in ulcers and sinuses and may easily be overlooked in the bottom of a crypt.

Then come splinters of wood, including pieces of toothpicks, toothbrush bristles, hardened feces and pieces of egg shell.

An apple seed, lodging in a posterior anal pocket, perforated the muscular coat above the levator ani muscle and formed an extraperitoneal pelvic abscess that could be palpated in the left groin above Poupart's ligament.

A patient complaining of a burning, throbbing pain, which had come on suddenly a week previously, was found to have in the anal canal a tender fluctuating tumor, which in the course of examination ruptured and discharged pus through an anal pocket. In the pus was discovered a slender object, 0.5 cm. long and pointed at both ends. The observation that the patient had bitten his fingernails half way to the base led to the identification of the foreign body as a piece of his own nail.

Rectal irritation occurs seasonally when people eat grapes, strawberries, raspberries and corn. In these cases the injury practically surrounds the lower portion of the rectum or the upper part of the anal canal and is complained of as soreness or a heavy, burning, bearing down feeling. The appearance is one of an early proctitis. A similar condition results from the continued use of quantities of psyllium seeds and bran for therapeutic purposes. Two cases of bran impaction were reported [1] in 1928, one of which reached a fatal termination because of perforation. A number of cases of rectal irritation from the use of bran, some with moderate impaction, have occurred in my practice. A normal individual is less apt to be disturbed by such articles of diet than one with internal hemorrhoids, a chronic cryptitis and papillitis, or who has very recently had a rectal operation.

From a neglected cryptitis as well as from the more generalized lower rectal irritation just mentioned, there may develop an inflammation of the rectum and pelvic colon, even going on to ulceration.

The clinical study of the pathology points to the region of the anal crypts as the starting point of practically all conditions depending on injury and infection; and on account of the association of these conditions with internal hemorrhoids, which necessarily are of longer duration, circulatory disturbance must have preceded the infection. Briefly, when, following injury either by food or by a foreign body, acute cryptitis (fig. 3) and papillitis are not relieved, the condition tends to become chronic and the picture changes to one of hypertrophied anal valve with an associated deep pocket or sinus. This is a constant menace, from which at any moment further irritation may lead to ulceration of the lower portion of the rectum, an anal fissure, or a submucous (rectal) or subcutaneous (anal) abscess from which there are formed, respectively, submucous and subcutaneous anorectal fistulas. Further extension of the infection, from the same source outward into the tissues of the ischiorectal fossa, the retro-anal triangular space or the perineum, may result in extensive abscess formation and later complicated fistulas. An anal fissure, when not acute and when examined for the first time, almost invariably has, at or near its upper end, a deep pocket with a more or less hypertrophied anal valve, and a tissue study shows continuous inflammation through pocket, valve and fissure.

Pennington has suggested a rational way of naming sinuses and fistulas from their internal openings; i. e., rectal, anorectal and anal. About 85 to 90 per cent of these passages open at the anorectal junction. When there is an opening into the rectum, the tract runs under wall plastered with feces before coming to an appearance of mucous membrane. An interesting thing with most of these people, not all of them, but most of them, is that they have toxic symptoms. I have no term for the condition. One may accept it as an infective condition of the mucous membrane from which there are toxic bodies that get into the circulation by way of resorption into the inferior hemorrhoidal veins. Not a few of these people have definite symptoms of some sort anywhere in the body. It is not an uncommon type of case, I am sure, and I merely want to mention it in connection with these various infective pathologic changes and to say that it has clinical significance as a producer of symptoms and that usually the patient is readily cured with a few enemas containing hydrogen dioxide.

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[1] Butzke, E. J.; Barker, H. O.; Boswell, J. R., and Drewett, T. E.: Impaction of Bran in the Gastro-Intestinal Canal, U. S. Vet. Bur. M. Bull. 4: 549 (June) 1928.

Dr. Emmett H. Terrell, Richmond, Va.: Both Dr. McKenney and Dr. Hirschman are proctologists and they can readily recognize this disease which they call cryptitis. Most of the physicians here, I take it, are gastro-enterologists, and probably the term "cryptitis" is not quite clear. Cryptitis occurs at the bottom of the little anal valves and may occur from the retention of seed or of fecal matter. This does not remain a simple cryptitis very long. After the infection exists there for a while, the valve becomes thickened and hypertrophied, which one recognizes as a papillitis. Soon the infection will pass beneath the mucocutaneous membrane, between it and a thin layer of fascia outside of it, producing what I term an anal sinusitis. An infection of this sort is frequently recognized when one is making a digital examination, being manifested by a marked spasm and irritability of the sphincter muscles.

Dr. B. J. Dryfuss, New York: I wish to say just a few words in regard to the etiology of this factor. One sees numbers of foreign bodies of all kinds, and today with the newspapers and magazines and radios all broadcasting the use of bran, psyllium seeds and colonic irrigations, it is a wonder that almost every one hasn't some sort of fecal infection. Any one who has done any amount of proctoscopic work, I am sure, will feel as I do, that these things, bran, psyllium seeds and roughage, which I am using in contradistinction to residue, work damage; and no one will be surprised to hear what Dr. Hirschman as well as Dr. McKenney said. I think it is a duty obligatory on us here as gastro-enterologists and proctologists and proctoscopists to start some sort of investigation to find out exactly the proportion and the value or lack of value of these irritants. Their pathologic results are evident to any one who has done any of that work and I feel sure it doesn't stop in cryptitis and proctitis but extends even further into carcinomatous conditions, diverticulitis and the rest, all of which have greatly increased in number in the last few years.

Dr. Descum C. McKenney, Buffalo: Regarding what has been said about the use of the anoscope and probe in making examinations, a sinus can easily be made by the latter when none is present, unless care is used. There will be less need for these instruments if one will first bimanually evert the anal canal, often thus exposing the anal pockets, showing signs of redness and inflammation, pus pouring from a pocket or even a sinus. One should follow this by palpation of the same region, which may reveal swelling or induration of the crypts. After this the instruments mentioned may be helpful in the diagnosis. There is no doubt that the upper part of the intestinal tract is responsible for a lot of anorectal trouble. I have seen, as Dr. Bassler has said, many times, dry particles of feces in the intestinal tract and have regarded it as abnormal but haven't quite understood what it was. I have thought it was an atrophic condition of the mucosa. Dr. Dryfuss has said what I tried to say, only said it so much better that I hope it will bear fruit, because I am sure, as I intimated, the use of bran and psyllium seeds is certainly doing a lot of harm. There was a question as to how to soften stools. I think the best thing of all is plain agar and liquid petrolatum used properly; and, when necessary to get the bowels to move, small cool enemas, given through a male catheter, as needed, are most helpful.

Dr. Louis J. Hirschman, Detroit: I want to remark about the examination of the anus in order to disclose the presence of anal crypts. Dr. Fansler states that he has had better results in examining with a bivalve speculum. I use cylindric instruments. The first one used is about the size of the little finger, with an oblique opening, so that on withdrawing it one has a large field and sees two or three crypts in view but by dilating the anus, one doesn't get a second chance examination. I have seen patients with definite colonic dysfunctioning who have been entirely relieved when the focus and irritant were found in the first inch of the anal canal and were removed and the offending crypts drained. If we have done nothing more in these two papers than remind some of the men that there is a highly important area of focal infection here which is often originated by trauma such as mentioned in Dr. McKenney's paper, and we have reiterated that the examination of the anal canal is not only digital but must also include a visual examination, no matter what instrument one chooses to use, I think the papers have accomplished their purpose.

RECURRENT HYPERTHYROIDISM, NEUROCIRCULATORY ASTHENIA AND PEPTIC ULCER

TREATMENT BY OPERATIONS ON THE SUPRARENAL-SYMPATHETIC SYSTEM *

GEORGE W. CRILE, M.D.
CLEVELAND

Civilized man has many diseases and infirmities in common with primitive man and the lower animals—accidents of birth, irregularities of adolescence and nutrition, cancer, infections and infectious diseases. On the other hand, there are certain diseases such as hyperthyroidism, neurocirculatory asthenia, peptic ulcer, diabetes and other less clearly defined diseases that are peculiarly the lot of civilized man. One should expect to find, then, that the mechanism the disturbance of which produces these diseases would be the mechanism on which civilized man's characteristics depend. The one characteristically human organ is the brain; the rise of the brain and its dominance has won for man his place in nature. It is characteristic of civilized man that his life is projected on rational lines, that it is full of work and worry as compared with that of the lower races of man and the lower animals.

One would expect, therefore, that hyperthyroidism, peptic ulcer, neurocirculatory asthenia, diabetes, and the like would be found most commonly among the most active, most striving, most worrying men and women. And this is a well known fact.

Now although the mechanism of the suprarenal-sympathetic-thyroid group was functioning before the dominant power of the brain was achieved, this frontal lobe has gained a certain amount of control over the suprarenal-sympathetic system. Certainly the expression of the emotions, the defense against infection, the heavy struggles of life are possible of execution only by the aid of the suprarenal-sympathetic-thyroid group. Since excessive worry and work, as well as infection, are common exciting causes of these diseases, one would expect that if the suprarenal-sympathetic system were to be separated from direct control of the brain there would be an abatement of the diseases mentioned as being bred in the drive of that mechanism. The most vulnerable point of attack would be the suprarenal link of the chain.

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* From the Cleveland Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

SUMMARY

It is clear that denervation will relieve and probably cure recurrent hyperthyroidism; it will relieve and probably cure with equal promptness neurocirculatory asthenia, which is a unit of pathologic physiology analogous to exophthalmic goiter. In the diseases in which emotional states, nervous strain, worry and overwork are dominating factors, such as peptic ulcer and diabetes, the principle of the operation may apply; and while the results thus far are encouraging they are not yet worked out as completely as are those for recurrent hyperthyroidism and neurocirculatory asthenia. Time and critical examination of clinical results will bring the final verdict.

Our endeavor, at this early stage, is to present the conception of an energy system which involves a group of organs that collaborate in the transformation of potential into kinetic energy. The excessive driving of this energy-controlling group or kinetic system we designate as pathologic physiology, and the surgical interventions leading to a lessening of the pathologic drive we call a dekineticizing operation.

2050 East Ninety-Third Street.

NEUROGENIC FACTOR IN CHRONIC PEPTIC ULCER *

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The etiology of peptic ulcer and its pathogenesis are yet to be determined. There is evidence to show that bacterial infection, endarteritis, traumatism, toxic substances, hyperchlorhydria, improper diet, alcohol, tobacco, reflex disturbances, and certain constitutional diseases will, under certain conditions, be associated with the development of ulcers, both acute and chronic. In predisposed individuals, these and other causes seem to be capable of producing chronic peptic ulcer of both the duodenum and the stomach, and of activating ulcers that have apparently healed. Most observers admit, however, that there is some predisposing cause yet unknown. Since Virchow, in 1853, expressed the belief that peptic ulcer may be due to faulty blood supply in the stomach wall, most observers, in seeking to account for the pathogenesis of the disease, have given due prominence to possible disturbance of the circulation in circumscribed areas of the wall of the stomach and duodenum, whatever the exciting cause or causes may be.

Reeves,[1] in 1920, demonstrated by injection of the arteries that the areas in which ulcers commonly occur have a poorer blood supply than the rest of the stomach and that the capillaries do not anastomose in these areas. This, however, does not explain why the commonly accepted exciting causes will produce ulcer in one individual and not in another.

I wish to emphasize that the ulcer bearing individual belongs to a distinct type and from birth is predisposed to the development of chronic peptic ulcer. This type is the high-strung, emotional, so-called vagotonic individual, with sensitive nervous system and certain physical peculiarities which clearly distinguish him from the opposite, or sympatheticotonic, type, showing marked visceroptosis, and subject to melancholia, lassitude, headaches, atonic constipation—an easy victim of morbific influences in general. Many observers have emphasized the importance of the nervous element in the production of ulcer. Berg of New York has stated that ulcer is prone to occur in vagotonic individuals. Few surgeons, if any, however, have observed that typical chronic peptic ulcer rarely occurs in the opposite, or, so-called sympatheticotonic, type. Draper, Dunn and Seegel [2] state that there is a special physical type of individual that predisposes to peptic ulcer. A. B. Rivers,[3] in seeking to account for ulcer, suggests that nervous imbalance prevents normal pyloric function and that all conditions which produce a state of excitement and its consequent disturbance of pyloric function should be avoided and the patient made as comfortable and happy as possible. Eusterman [4] observes, "There is a possibility of a relationship between ulcer and a nervous imbalance."

L. D. Snorf [5] mentions two chief predisposing factors of ulcer as being disturbances of the sympathetic system, resulting in the spasm of blood vessels and local muscles, and some peculiar disturbance of the blood vessels to the stomach and intestine.

Irving Gray [6] says: "Ulcer of the gastroduodenal tract remains secondary to some primary condition, the exact nature of which is unknown. We must conclude, therefore, that the syndrome of ulcer, especially duodenal ulcer, is a vegetative, neurotic complex, as emphasized by Westphal and Katch."

Frank Smithies [7] seems to think that peptic ulcer is usually the local expression of a systemic condition. He [8] says, "In more than 95 per cent of instances, peptic ulcer is a visceral lesion, formed as a complication of systemic, constitutional, toxic or environmental disturbances.

E. S. Judd [9] says: "Experience seems to show that there is a tendency to the formation of ulcer in certain individuals, and that no matter what treatment is undertaken, recurrence is almost certain to take place. The factor responsible for this has not been determined, and its discovery will yield valuable information concerning the etiology and pathogenesis of ulcer."

Typical peptic ulcer is apt to begin in youth, or even in childhood, at the time of life when the commonly accepted causes of the disease are not present. The young ulcer bearing person is rarely ever the type one expects an invalid to be. He recovers readily from acute diseases and from injuries, and is apt to be active, alert and enthusiastic in both work and play. In spite of this, he has a nonhealing, peptic ulcer. The diagnosis of ulcer in youth is becoming increasingly more frequent.

Rivers and Eusterman [4] make the significant statement that a result of the analysis of Mayo Clinic cases shows that the average age of patients when symptoms first occur is surprisingly low. Twenty per cent have symptoms suggesting ulcer before the age of 20, and 61 per cent have well developed symptoms before 30. They also observe that certain types of persons seem especially predisposed to reform ulcer. These include, in part,

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

1. Reeves, T. B.: Surg., Gynec. & Obst. **30:** 374 (April) 1920.

2. Draper, G.; Dunn, H. L., and Seegel, D.: Am. J. M. Sc. **169:** 322-328 (March) 1925.

3. Rivers, A. B.: Journal-Lancet **48:** 21 (Jan. 15) 1928.

4. Rivers, A. B., and Eusterman, G. B.: Ann. Clin. Med. **4:** 365-378 (Nov.) 1925.

5. Snorf, L. D.: Illinois M. J. **54:** 161 (Aug.) 1928.

6. Gray, Irving: New York State J. M. **28:** 780 (July 1) 1928.

7. Smithies, Frank: Ann. Clin. Med. **5:** 918 (April) 1927.

8. Smithies, Frank: The Nonsurgical Management of Peptic Ulcer by the "Physiologic Rest" Method, J. A. M. A. **85:** 674 (Aug. 29) 1925.

9. Judd, E. S.: Virginia M. Monthly **55:** 755 (Feb.) 1929.

constitutionally organized individuals to compensate for the strain of our present-day high tension life.

Dr. E. P. McCullagh, Cleveland: I wish to emphasize that these operations on the suprarenals are not proposed for uncomplicated hyperthyroidism and are not intended to displace thyroidectomy. The procedure called suprarenal denervation has been of especial interest to me in two groups of cases: first, a group in which there are residual symptoms of hyperthyroidism after thyroidectomy or after repeated thyroidectomies; and, second, a group of cases called neurocirculatory asthenia, effort syndrome, irritable heart, and the like, in which the differentiation from early hyperthyroidism is often difficult and in which many signs are present which suggest sympathetic stimulation. It is particularly interesting that, during the last few days, Dr. Swingle, whose work is well known, has demonstrated that the cortical suprarenal hormone can raise the basal metabolism in animals in whom the metabolism has been made to fall, not only through various causes but by thyroidectomy itself. The first chart shows the results of suprarenal operations for residual hyperthyroidism. In seven cases, left suprarenalectomy was performed. In five of these the symptoms were not controlled and in two they were controlled. Unilateral suprarenal denervation was performed in two cases, followed by abatement of symptoms in both, and bilateral denervation in eight cases, with abatement of symptoms in seven. It will be seen that suprarenal denervation obviously has afforded relief in a larger proportion of cases than has unilateral suprarenalectomy. These operations were performed from three and one-half years ago to one month ago. They include only such cases as I have observed; any cases in which an accompanying thyroid operation was performed are not included. These patients received iodine while they were in the hospital but have received none since their discharge. The second chart shows the results, to date, of suprarenal operations in cases of neurocirculatory asthenia which I have observed. Four left suprarenalectomies plus thyroidectomy were followed by relief in two cases and no relief in the other two. In one case, in which only suprarenalectomy was performed, the symptoms were not controlled. Suprarenal denervation was done in ten cases. In three patients unilateral denervation was done and in two of them the symptoms were controlled. In seven cases bilateral denervation was performed, in six of which the symptoms have abated.

Dr. John J. Gilbride, Philadelphia: The first essential for the successful management of peptic ulcer is an exact diagnosis: (1) the location and character of the ulcer; (2) the number of ulcers present; (3) the presence of complications, and (4) associated conditions. When these points have been decided, it is possible to apply the most efficient treatment for the individual patient. Incomplete examinations and incomplete studies of cases are frequent causes of overlooking the presence of ulcer and the subjecting of patients to operations on the appendix and gallbladder. It is necessary to divide ulcer patients into those who are suitable for medical treatment and those who require surgical operation plus medical treatment, because all patients operated on require medical supervision. Most of the patients with simple uncomplicated ulcer get well under medical treatment and most of those who require surgical operation get well after excision of the ulcer, and if necessary one of the simpler operations such as pyloroplasty or a gastrojejunostomy. Extensive operations should be reserved for patients whose diseases are resistant to these other methods of treatment. It is true that peptic ulcer disease persists in a small percentage of cases, and perhaps it is in this group of cases that those extensive methods of surgical operation recommended would find their greatest field of application.

Dr. Charles E. B. Flagg, Vancouver, Wash.: In this age of specialization, the recommendation by a surgeon of treatment of the patient's emotional system as well as of the lesion is highly gratifying. I should like to emphasize that the hunger pain must first be relieved by diet and medication, before an attempt is made to improve mental conditions. I find it difficult or impossible to divert the patient and make him contented while he is having pain in the abdomen.

Dr. Witten B. Russ, San Antonio, Texas: It is quite true that it has not yet been proved that ulcer occurs only, or chiefly, in the vagotonic type; nor, on the other hand, has it been proved that typical chronic peptic ulcer ever occurs in the opposite, or sympatheticotonic, type. I think the reason is that ulcers are never classified according to type. When this is done, and the observations are confirmed by surgical operation, it will be found that most, if not all, the chronic peptic ulcers occur in vagotonic patients. A careful study of all ulcer cases to determine the age at which symptoms first appeared, and with especial attention to the type of the individual, will throw much light on this subject.

Dr. George W. Crile, Cleveland: My purpose in this paper was briefly to express the point of view that there is perhaps a principle by which one may attack some of these problems. Later, I propose to give a report on the final end-results. It will take time and careful study of the clinical end-results before one is certain of one's ground, but if one should be fortunate in suggesting a principle, in suggesting perhaps another way of looking at these difficult problems, their solution will certainly be greatly facilitated.

THE TREATMENT OF POLIOMYELITIS

RESULTS IN A SERIES OF ONE HUNDRED AND FOUR CASES *

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H. E. THELANDER, M.D.
AND
M. A. LIMPER, M.D.
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SAN FRANCISCO

The ability of serum containing actively antiviral substances to affect the course of poliomyelitis after symptoms have appeared is a consideration of utmost importance in the treatment of the disease with convalescent or other serum. In comparison to this major consideration, dosage and method of administration are probably of secondary significance.

Serum of human beings and monkeys convalescent from the disease has been shown to have definite antiviral properties [1] and if injected into monkeys before the intracerebral inoculation of virus or if mixed with virus so injected will definitely prevent the development of characteristic symptoms. The crucial tests of therapeutic usefulness cannot be carried out in monkeys, since these animals are relatively insusceptible to the disease and develop it only in response to the highly artificial inoculation of massive doses of virus. The experimental disease thus produced runs a course which cannot be greatly influenced by subsequent injection of serum. Unfortunately, from the standpoint of therapeutic observations, spontaneous infection has never been observed in monkeys. It is equally true, of course, that experimental inoculation has not been tried on human beings.

Clinical trials of such an agent are thus restricted to human beings, under conditions which unavoidably depart from those ideal for laboratory experiment. The experience of many observers [2] gives definite encouragement to the view that the course of the disease may be beneficially influenced by the use of convalescent serum. From the theoretical standpoint, the hope of successfully combating the disease lies in the differences existing between the disease produced in relatively as reported elsewhere,[3] given intramuscularly. In order to conserve the pool of the Hooper Foundation for general use, much of the convalescent plasma used was freshly obtained from convalescents still in the hospital (*b*). Large doses were employed and we particularly did not rely on single doses but continued to give injections, if possible from varying sources, at intervals of from twelve to twenty-four hours until the active stage of the disease seemed to be over. Since it was impracticable to attempt to determine the potency (by monkey inoculations), of all our serums, we attempted by thus giving repeated injections from varying sources to insure the application of potent serum to each case. This necessitated the use of larger amounts of serum or plasma than can be recommended as a routine because of the difficulty of obtaining it. If, however, such a virucidal agent can be proved definitely effective, the problem of treatment is to provide known potent tested serum for every case of poliomyelitis, an end which, it is to be hoped, serum from immunized animals will fulfil.

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* *From the Department of Communicable* Diseases, Children's Hospital, and the Pediatric Department of the University of California Medical School.

[1] Flexner, Simon; and Lewis, P. A.: Experimental Poliomyelitis in Monkeys, J. A. M. A. **54:** *1780 (May 28) 1910.*

[2] Amoss, H. L, and Chesney, A. M.: A Report on the Serum Treatment of Twenty-Six Cases of Epidemic Poliomyelitis, J. Exper. Med. **25:** 581-608 (April) 1917. Zirgher, Abraham: The Diagnosis and Serum Treatment of Anterior Poliomyelitis, J. A. M. A. **68:** 817 (March 17) 1917. Aycock, W. L., and Luther, E. H.: Preparalytic Poliomyelitis, J. A. M. A. **91:** 387 (Aug. 11) 1928. Shaw, E. B., and Thelander, Huldah E.: Intramuscular Use of Convalescent Serum in Treatment of Poliomyelitis, J. A. M. A. **90:** 1923 (June 16) 1928.

Table 1 shows the results obtained in fifty-three cases treated before the onset of demonstrable paralysis. In each case are given the initials, the age, spinal fluid cell count, the dose of serum, and the day of the disease on which each dose of serum was given. The serum used was human serum or plasma unless noted by a symbol; symbol B indicates that blood was given intramuscularly; symbol BT refers to blood transfusion; S indicates sheep serum; G indicates goat serum. The animal serum used was from the immunized animals to which reference was previously made.[3]

Of the fifty-three patients, twenty-eight recovered without showing any signs of muscular weakness, the temperature subsiding rapidly to normal in some cases and more gradually in others. The use of animal serum produced varying degrees of serum reaction, which caused confusing clinical charts.

In fifteen patients, in spite of a greater average amount of serum, some muscle weakness developed, which was, however, slight and sometimes trifling in extent and which had disappeared completely at the end of three weeks, the period of quarantine. In nine of these fifty-three cases, persistent paralysis of varying extent developed, despite treatment, and one child of 9 years died.

All four types of end-results justify further comment. In the cases in the first group in which there was no demonstrable paralysis at any time there were doubtless some which would have run, without treatment, a benign course. It is impossible, we believe, to say which of these cases would have been spontaneously abortive. To be sure, such cases as P. B. and J. K. showed cell counts of only 12 and 16 per cubic millimeter, but these were diagnosed and treated extremely early in the disease on the basis of exposure and preparalytic symptomatology, and the cell counts, though low, showed a high percentage of polymorphonuclear cells. The highest counts of the whole number, on the other hand, were seen in M. A. and J. M., who made prompt and uneventful recoveries. We were most impressed at the bedside with such cases as those of W. C., M. C., M. P. and M. H., all of whom were desperately ill children. M. C. in particular was a very ill child of 6 years whose playmate died elsewhere of poliomyelitis two or three days before the former's entrance into the hospital. The condition of this child was alarming from the outset; the disease ran a stormy course and the child was given several doses of serum, as reference to the table will show, but at no time did she show any paralytic phenomena.

That some of this group might unaided have continued unparalyzed is likely enough, but symptoms in the group as a whole were certainly as severe during their febrile course as those of the preparalytic stage in severe cases of paralysis.

Those cases in which transient paralysis was observed were, at least, unquestionably paralytic in character. Most of these exhibited weakness for only a day or two. Several, especially H. F. and N. S., were very ill. In the former, a girl, aged 10, who had been in contact with her cousin, R. M., who entered the hospital paralyzed, facial weakness and other bulbar signs developed a few hours after entry, and twenty-four hours later the child was delirious. During this period of rapid progression threatening a fatal outcome, she was given three doses of human blood and plasma, and abruptly improved following a final dose of goat serum. She left the hospital at the end of her quarantine period with no demonstrable weakness.

The cases in which paralysis developed despite treatment were somewhat discouraging, but a more detailed consideration of their course gives in certain instances at least a plausible explanation for this apparent failure. Two patients, M. S. and R. H., were infants, aged 1½ and 2 years, who had been ill three and six days, respectively. Both resisted examination so much on entry that it is altogether probable that deltoid weakness which was later detected was present on entry. Both of these patients have since recovered, the first almost completely, the other one entirely, from the paralysis which was present. Two children, S. B., aged 11, and A. R., aged 6, had single doses of plasma, which in view of their unfavorable progress should preferably have been repeated. A. S., a girl, aged 13, although she entered the hospital unparalyzed, had a rapidly advancing case and had definite weakness and reflex changes at the end of twelve hours after entry. Her paralysis did extend, however, during the next two or three days. Two patients, M. D. and M. S., were adults who had been ill several days before entry and had the curious encephalitic type of the disease encountered most frequently in adults. They later showed paralysis. T. M., a man, aged 30, had paresthesias in his right arm from almost the moment of onset. His first dose of serum was given when his temperature was mounting; afterward, transfusion was done; his clinical chart somewhat justifies the impression that a specific result was obtained, but weakness quickly developed in his right arm, which persists to the present time.

The treatment of cases in adults is a distinct problem, and results in the recent epidemic were discouraging. In adults one saw a less conventional type of the disease and steadily progressive, severe or fatal forms were the rule. The adult is not the usual victim of poliomyelitis; it seems reasonable to surmise that adults are affected only by overwhelming amounts of virus, which, surmounting their natural barriers against the infection, produce a fulminating type of the disease. The amount of serum necessary to saturate the patient is a further factor in treatment. Chief reliance was placed in the use of large doses of plasma and particularly on blood transfusion from recent convalescents. Some of the results were at least encouraging. One such patient in

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[3] Howitt, Beatrice F.; Shaw, E. B.; Thelander, Huldah E., and Limper, Margaret: The Immunization of Goats and Sheep to Poliomyelitis Virus, J. A. M. A. **96**: 1280 (April 18) 1931.

In the group treated in the acute stage after the appearance of demonstrable weakness, of thirty-nine patients, nine showed transient weakness; twenty-three had persistent paralysis, and seven died.

The average age in those with transient weakness was 6.8 years; 11.7 years in those with persistent paralysis, and 19.8 years in the fatal cases, again showing the higher average age in those with serious outcome.

Average cell counts were 67 in the transiently paralyzed, 194 in those with persistent paralysis and 199 in the fatal cases.

Treatment was instituted on the average of 3.7 days after onset of symptoms in the transiently paralyzed, 4.2 days in the cases of paralysis and 6.3 days in the fatal cases, coinciding with the general idea of the importance of early treatment.

The transiently paralyzed patients received an average of 84 cc. of serum or plasma, the permanently paralyzed 156 cc., and in the fatal cases 156 cc. was given.

TABLE 3.—*Summary of Results in All Cases*

Cases Treated Before Onset of Paralysis (53)

	No. of Cases	Average Age in Years	Average Cell Count	Average Day of Treatment	Average Amount of Serum, Cc.
No paralysis........	28	9.5	146	2.7	120
Transient weakness...	15	10	119	3.6	151
Definite paralysis.....	9	17	197	3.4	209
Death..................	1	9	270	...	375

Cases Treated After Onset of Paralysis, Still Acute (39)

	No. of Cases	Average Age in Years	Average Cell Count	Average Day of Treatment	Average Amount of Serum, Cc.
Transient weakness...	9	6.8	67	3.7	84
Definite paralysis.....	23	11.7	194	4.2	156
Death..................	7	19.8	199	6.3	156

Summary of All Cases: Total 92

	Total No. of Cases	No Permanent Paralysis	Definite Paralysis	Death
Cases treated before onset of paralysis............	53	84.4%	16.9%	1.9%
Cases treated after onset of paralysis, still acute...	39	23.08%	59.07%	18.0%
Total.	92	56.5%	31.8%	8.7%

A summary of results in all cases is shown in table 3. Of the fifty-three patients treated before the onset of paralysis, 83.4 per cent showed no permanent paralysis; 16.9 per cent showed definite persistent paralysis, and 1.9 per cent died. Of the thirty-nine patients treated after the onset of paralysis while the disease was still acute, 23.08 per cent showed no end paralysis, 59 per cent showed definite paralysis and 18 per cent died. It is unfair to attempt to compare the results in these two groups of cases. While the first group included at least a few benign cases, the second group included many extremely virulent cases referred to the hospital because of their fulminant course.

CONCLUSION

Such a series of cases, like every other series with which we are familiar, is far from being a conclusive answer to the problem of treatment of poliomyelitis; it seems to us, however, fairly convincing evidence of the value of such treatment. To have watched these patients one by one was far more convincing than such a statistical report as this can possibly show, even if one discounts the enthusiasm which must inevitably attend the pursuit of such a problem. It is our conviction that the use of known highly immune serum will be productive of consistent results and that hyperimmune animal serum offers the greatest promise in this direction.

384 Post Street.

Clinical Notes, Suggestions and New Instruments

PULMONARY EMBOLISM: REPORT OF CASE *

WALTER FREEMAN, M.D., PH.D., WASHINGTON, D. C.

This case of pulmonary embolism is reported on account of the exceptional size of the embolism and the clarity of its demonstration.

J. M., a white woman, aged 61, had varicose ulcerations on both legs and developed cellulitis on the left side. Under hot packs this cleared up after five days and the patient was allowed up in a wheel-chair. The heart was not enlarged; there was a soft systolic murmur audible over the whole precordium, and extrasystoles were present. The blood pressure was 170 systolic and 80 diastolic; the electrocardiogram was not abnormal. When the patient rose from her chair preparatory to discharge she complained of feeling weak and of being unable to stand. Almost immediately she became dyspneic and cyanotic, and thrashed about in bed fighting for air. She was pulseless and the cardiac sounds were barely audible. Eight or ten minutes after the onset the cardiac action ceased, while a few more gasping breaths were taken. The clinical diagnosis was pulmonary embolism from thrombophlebitis of the left leg.

Necropsy disclosed marked dilatation of the right side of the heart, with a little excess fluid in the pericardial cavity. Before the relations were disturbed the pulmonary artery was incised and a little dark blood escaped, followed by a loop of thrombus. When this was withdrawn it was found to measure 43 cm. in length and to be about the diameter of the saphenous vein. It was doubled on itself and it almost completely occluded the main pulmonary artery. It was smooth, partially decolorized, and at one end had a threadlike projection of darker color. In addition to the main embolus there were found two other coiled thrombi of about the same caliber, one located in the main branch of each pulmonary artery. They were doubled on themselves rather irregularly, were easily withdrawn, and resembled exactly the texture of the main embolus. The inferior vena cava, the iliac and the femoral veins were investigated without any roughening of their walls or thrombosis being found. The area of cellulitis, on incision, yielded some dark fluid blood, but no thrombi were found. It is presumed that the thrombus formed in the saphenous vein as a result of the cellulitis and grew upward without adhering to the wall of the vein, finally becoming sufficiently bulky so that parts broke off in response to movement of the lower limbs, followed finally by the main mass.

ALLERGIC EPILEPSY: REPORT OF A CASE IN A THREE YEAR OLD CHILD

SAMUEL J. LEVIN, M.D., DETROIT

History.—L. S., a girl, aged 3 years, seen, Sept. 12, 1929, had a negative family history for tuberculosis, syphilis and allergy. There were two other children in the family alive and well.

The patient had been breast fed for four months and had been given cod liver oil and orange juice at 2 months. She sat at 6 months, walked and talked at 13 months. Between the ages of 2 and 3 years, she had mumps, chickenpox and whooping cough.

When she was between 2 and 3 months old she began to turn blue and hold her breath. This occurred at first two and three times daily; then about every week to a month. These attacks seemed to be precipitated by loud noises or fright. The attacks ceased at 1 year, and except for the contagious diseases mentioned she seemed perfectly well. In August, 1929, she began to have attacks every few days, characterized by falling down and becoming unconscious. The child would be stiff, her eyes would stare, and she would become bluish. She would then become limp. The attack would last about a minute and was followed by weakness and drowsiness. The child was seen by a neuropsychiatrist, Dr. Theophile Raphael, who suspected an allergic basis for the epileptiform seizures and referred the patient for investigation.

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* From St. Elizabeth's Hospital.

amnii. Fetal heart tones were not heard. May 23, she delivered a still-born male fetus of about eight months' gestation, showing beginning maceration. The puerperium was uneventful.

COMMENT

A case of epidemic parotitis complicating pregnancy is presented in which the prodromal symptoms were especially severe, the parotid involvement excessive and the clinical course so severe as to jeopardize the patient's life.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, Secretary.

IVYOL-POISON OAK EXTRACT-MULFORD.—A solution in olive oil of an irritant or vesicant oil extracted from the fresh leaves of poison oak (Rhus diversiloba).

Actions and Uses.—Ivyol-poison oak extract is used to relieve the symptoms of the dermatitis produced through contact with poison oak.

Dosage.—In cases of average susceptibility, 0.7 cc. intramuscularly at daily intervals for four doses or until relieved. In cases of unusual susceptibility, from 0.2 to 0.35 cc., increased or not as indicated.

Manufactured by H. K. Mulford Company, Philadelphia. U. S. patent 1,559,340 (Oct. 27, 1925; expires, 1942). U. S. trademark applied for.

Hypo Units Ivyol-Poison Oak Extract: Collapsible syringe containers, each containing 0.7 cc. of ivyol-poison oak extract.

The fresh leaves of Rhus diversiloba are extracted with purified petroleum benzin. The resulting extract is filtered through paper and decolorized by agitation with fullers' earth. The decolorized extract is concentrated in vacuo to one-tenth its original volume; the concentrated extract is allowed to evaporate spontaneously to dryness; and the residue dissolved in sterile olive oil in the proportion of one part of the extract to 1,000 parts of oil, and 2 per cent of camphor added as a preservative.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1931, p. 361).

Lederle Laboratories, Inc., Pearl River, New York.

Diphtheria Toxin-Antitoxin Mixture, 0.1 L+ (Goat).—A mixture containing 0.1 L+ dose of diphtheria toxin per cubic centimeter, neutralized with the required amount of diphtheria antitoxin obtained from goats. Marketed in packages of three vials, representing one complete immunization; in packages of three syringes, representing one complete immunization; in packages of thirty vials, representing ten complete immunizations; and in packages of one 30 cc. vial, representing ten complete immunizations.

NEOCINCHOPHEN (See New and Nonofficial Remedies, 1931, p. 123).

Neocinchophen-Squibb.—A brand of neocinchophen-N. N. R.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Tablets Neocinchophen-Squibb, 5 grains.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

CARVITIN NOT ACCEPTABLE FOR N. N. R.

Carvitin, according to the information furnished by the Carvitin Products Laboratories, Inc., is a mixture "the active medicinal ingredients consisting of, one (1) grain of vitamin soluble B to the ounce, three (3) grains of pancreatin to the ounce" in a base composed of butter fats 30 per cent, lard 30 per cent, sweet chocolate 15 per cent, bitter chocolate 15 per cent, honey 10 per cent, with glycerin as a preservative. It is stated that the vitamin soluble B in the preparation is a soluble extract made of medicinal yeast "Difco." The trade package of Carvitin contains no information in regard to the composition, other than that it contains vitamin B. In the advertising Carvitin is stated to be "a combination of soluble yeast extract, pancreatin, butter fat and a base rendering to this food tonic a very palatable taste," but no information in regard to the amounts of these ingredients is offered. No information is given on the label or in the advertising in regard to the potency of the yeast extract nor was any evidence submitted to the Council to indicate that the potency of the yeast extract used in the preparation of Carvitin is known or controlled.

Carvitin is claimed to be a "health builder" and "a most Effective Tonic Reconstructive as to Food Value," which "Improves your weight and is Most Valuable in cases of Debility following temporary illness." It is also claimed for Carvitin that "Each ingredient, including the base, has a specific function, and the beneficial values of all the ingredients used in Carvitin are well known to the medical profession"; that it "Increases the appetite, Aids digestion, Helps metabolism, Builds muscle and tissue" and is "the Ideal Tonic." In regard to these extravagant and unwarranted claims it need only be said that the Council has decided not to permit the claim for any medicinal preparation or food that it is a "tonic" and that the medical profession knows that pancreatin is destroyed by the gastric juice and that therefore the oral administration of pancreatin as represented by Carvitin is irrational.

The Council finds Carvitin unacceptable for New and Nonofficial Remedies because it is an unscientific mixture marketed under a name that is not descriptive of its composition, without a declaration of its quantitative composition and without evidence that the potency of the yeast extract contained in it is controlled and because it is sold with claims that are extravagant, misleading and unwarranted.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

SMACO HYPO-ALLERGIC SKIM MILK (303)
(Sterilized Liquid)

Manufacturer.—S. M. A. Corporation, Cleveland.

Description.—A sterilized almost fat free skim milk made hypo-allergic by prolonged processing.

Manufacture.—The milk used in SMACO (303) is collected in accordance with the provisions of the sanitary code of the Cleveland Board of Health. On receipt at the dairy, the milk is pasteurized by the holding system, by which it is uniformly heated to a temperature of between 61 and 65 C. and uniformly maintained at this temperature for thirty minutes. The milk is cooled forthwith to 7 C. or less.

The pasteurized milk is almost completely defatted in a centrifugal cream separator. The skim milk is canned and processed under steam pressure for a prolonged period, after which it is immediately cooled.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture	90.9
Total solids	9.1
Ash	0.7
Fat (ether extract)	0.1
Protein (N × 6.38)	3.2
Lactose (by difference)	4.9

Calories.—0.35 per cubic centimeter; 0.33 per gram; 10 per fluid ounce; 9.4 per ounce.

Micro-Organisms.—This hypo-allergic milk is sterile according to the "Standard Methods of Bacteriological Analysis of Milk" of the laboratory section of the American Public Health Association.

Claims of Manufacturer.—This hypo-allergic skim milk is especially prepared for individuals subject to allergic reactions from usual boiled skim milk or other skim milk preparations. It may be used in regular feeding formulas.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 28, 1931

CRYSTALLINE VITAMIN D

All students of vitamins have long recognized that real progress in our understanding of the physiologic functions and the biologic origins of these indispensable food components depends in no small measure on the possibility of securing the potent substances in chemically pure forms. This applies similarly to the hormones that are so effective in influencing bodily processes and reactions. The crystallization of epinephrine and thyroxine, for example, led to the establishment of their chemical constitution; and this was followed with almost unexpected rapidity by the artificial synthesis of the active compounds.[1] The laboratory has thus triumphed once again over nature by making it possible to replace naturally occurring potent substances by the identical products of human ingenuity.

Commendable progress has lately been made in the domain of vitamin research. Notable is the demonstration that the yellow pigment carotene, now readily obtainable in crystalline form and chemical purity, is transformed into vitamin A in the liver and produces the physiologic effects of vitamin A.[2] American investigators have recently announced the finding of an enzyme, carotenase, in liver tissue capable of converting the pigment into vitamin A.[3] Carotene may therefore at present be regarded as a so-called provitamin. Its remarkable potency is indicated by the repeatedly made demonstration that from 3 to 5 γ, that is, from 0.000003 to 0.000005 mg., suffices to restore to health the standard test animals, rats of 100 Gm. body weight, that show symptoms of vitamin A deficiency. This means that a substance representing less than one part in twenty million of the body substance, administered once a day, serves to insure well being instead of disorder.

Recently even greater progress has been reported for the antirachitic vitamin D. Following logically on the demonstration that irradiation of the crystalline substance ergosterol in suitable ways leads to the production of a substance (viosterol) that is identical in function with what has heretofore been designated as the vitamin D component of cod liver oil and other antirachitic substances comes the report of the isolation of the potent derivative in crystalline form.[4] The attack on the difficulty involved in this performance has been launched simultaneously by Windaus and Linsert at Göttingen in Germany and by a group of biochemists at the National Institute for Medical Research in England. The earliest preparations, though crystalline, now seem to have been contaminated by inert impurities. If, as seems reasonable, it may be assumed that high biologic potency is indicative of relatively great chemical purity, the English investigators have indeed made a noteworthy contribution. They[5] have secured a crystalline material from irradiated ergosterol that has the empiric formula of ergosterol. One milligram of the substance, which they tentatively designate as "calciferol," exhibits an antirachitic potency of approximately 40,000 international vitamin D units. With the preparation of pure, crystalline products of constant potency, as in the case of "calciferol" and carotene, the way is opened for a more rational basis of vitamin assays of our natural food products.

ORGAN-SPECIFIC LIPOIDS

The recent demonstration[6] by pupils of Prof. Hans Sachs of Heidelberg University of highly specialized lipoids in human tissues, having heretofore unsuspected identities with the lipoids of pathogenic microorganisms and of lower animals, introduces new factors in immunologic reasoning, offers new hypotheses as to the etiology of certain degenerative diseases, and suggests hitherto impossible diagnostic methods. Although the new lipoids are at present solely of theoretical interest, practitioners must familiarize themselves with this growing complexity in clinical chemistry.

Up to about five years ago, but one antigenic component of the human body was known to be of subhuman specificity, the protein of the cystalline lens. An antihuman lens precipitin was known to react in vitro with the lens proteins of all animal species. Since then it has been shown by Hektoen and his co-workers that thyroglobulins also are of approximately the same specificity in man and lower animals,[7] that all fibrinogens possess common or overlapping antigenicities,[8] and that some of the individual blood proteins are not of full human specificity.

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[1] The Synthesis of Thyroxine, editorial, J. A. M. A. **88:** 1892 (June 11) 1927.

[2] Vitamin A and Carotene, editorial, J. A. M. A. **95:** 937 (Sept. 27) 1930.

[3] Olcott, H. S., and McCann, D. C.: The Transformation of Carotene to Vitamin A in Vitro, Science **74:** 414 (Oct. 23) 1931.

[4] Askew and others: Proc. Roy. Soc. B. **107:** 76, 1930. Angus and others: Ibid. **108:** 340, 1931. Reerink and van Wijk: Biochem. J. **23:** 1294, 1929; **25:** 1001, 1931. Windaus: Proc. Roy. Soc. B. **108:** 568, 1931. Liebig's Ann. **489:** 252, 1931.

[5] Askew, F. A.; Bruce, H. M.; Callow, R. K.; Philpot, J. St. L., and Webster, T. A.: Crystalline Vitamin D, Nature **128:** 758 (Oct. 31) 1931.

[6] Moran, F.: Ztschr. f. Immunitatsforsch. u. exper. Therap. **67:** 115, 1930.

[7] Hektoen, Ludvig; Fox, H., and Schulhof, Kamil: J. Infect. Dis. **40:** 641 (June) 1927.

[8] Hektoen, Ludvig; and Welker, W. H.: J. Infect. Dis. **40:** 706 (June) 1927.

Current Comment

SALIVARY DIGESTION OF STARCH, 1831

The present year may well be said to mark the hundredth anniversary of the beginning of the study of enzyme activity in body fluids. Only a few years after the discovery of hydrochloric acid in the gastric juice, and at about the same time that William Beaumont was performing his now famous gastric experiments with Alexis St. Martin, E. F. Leuchs [1] clearly demonstrated the digestive functions of saliva. Even today it is of interest to read again the brief account of this noteworthy contribution to physiology. Thus Leuchs wrote:

> Tiedemann and Gmelin found some sugar in the gastric contents of a goose fed only with starch powder until death. Because saliva is very similar to gastric juice, I decided to investigate its digestive functions. Accordingly, cooked starch was allowed to stand with some added saliva in a warm place and, after a short time, the thick mass became fluid and appreciably sweet. Raw starch was apparently altered only to the extent that it had been previously treated with warm water to form a paste. This explains why all farinaceous foods, through cooking or baking, become readily acted upon.

Since this first demonstration of the inability of saliva to digest raw starch, similar experiments have been included in many laboratory courses in physiologic chemistry. Leuchs also showed that acacia and lactose were not affected by saliva. He continued:

> The foregoing experiments offer a ready explanation for the fact that the Indians in a section of South America, who cultivate a variety of maize from which they prepare a kind of beer, first chew the grain, whereby it is supposed to become better. In ancient Greece, also, the wetnurses frequently chewed the food for the children to render it more digestible.

A thoroughly practical point of view marks the concluding sentence, in which the author points out the possibility of using the saliva and gastric juice of slaughtered animals in the treatment of human digestive ailments. Later investigations have shown such therapeusis to be of limited value. Nevertheless, the fundamental importance of Leuch's contribution to knowledge of the chemistry of digestion is quite evident. His work may be considered one of the foundations of the fruitful researches that have resulted in this field during the years since 1831.

THE EFFECTS OF COMPLETE PANCREATIC DRAINAGE

Attention has been directed recently and more impressively than ever before to what the loss of some of the alimentary secretions may mean for the welfare of the body. Persistent vomiting, with the removal of considerable quantities of gastric secretion, may bring about untoward results, as does a persistent diarrheal loss of intestinal fluid. Two features of such experiences are especially stressed; namely, the loss of water and the loss of chloride. Anhydremia and disturbances of the inorganic balances of the blood constituents are serious symptoms formerly quite unsuspected. The restoration of fluid and chloride to the body often insures relief and recovery. Of late there have been accumulating indications [1] that the loss of pancreatic juice for any length of time may be incompatible with life, whereas the loss of bile and duodenal secretion is without lethal effect. Observations of McCaughan [2] at the Mayo Foundation emphasize anew the importance of the water and chloride stability of the organism. The removal of the pancreas is not necessarily fatal so long as insulin is supplied to replace the missing essential hormone; but, when all the pancreatic juice is drained away from the body, death is likely to ensue promptly. The loss of the juice may conceivably represent losses of protein, water and salts. Subtotal drainage of pancreatic juice is generally without lethal effect. Total drainage by fistula produces characteristic metabolic alterations. Anhydremia is to be emphasized particularly. Chemical changes in the blood are chiefly marked by modern elevations of urea preceding death. Apparently, health can be restored by oral administration of whole pancreatic juice. The administration intravenously of physiologic solution of sodium chloride daily during the period of total drainage will prolong life and maintain the blood in normal condition. McCaughan points out that the essential cause of early death following total drainage of pancreatic juice is not entirely clear. In general, the loss of salts, water and proteins by way of the pancreatic juice and gastric vomitus must be an important factor. The comparatively slight disturbances in the blood on chemical examination and the improvement in the condition of a moribund animal after oral administration of whole pancreatic juice leave much to be explained. Modern research has stressed the importance, however, of averting anhydremia under any of the increasingly recognized circumstances in which it may arise.

MEDICAL EDUCATION IN MISSISSIPPI

Repudiation of the Bilbo administration, which so nearly wrecked the educational institutions of Mississippi, occurred recently when Martin Sennett Conner was overwhelmingly elected governor. The standing of the medical school of the university was threatened in 1930 when the dean and the entire faculty were ousted and others put in their places. A partial restitution took place when the Council on Medical Education and Hospitals of the American Medical Association, the Association of American Medical Colleges, and other organizations interested in higher education, the united medical profession of Mississippi and an aroused public opinion protested against such high-handed and destructive tactics. Most of the faculty members were recalled and Dr. P. L. Mull, professor of anatomy, was named acting dean. Professors were graciously lent to the school by Vanderbilt University and the University of Tennessee. The medical school department. The bureau of laboratories will remain at 247 Pearl Street.

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[1] Leuchs, E. F.: Wirkung des Speichels auf Stärke, Ann. der Physik. u. Chemie (Poggendorff's) **22**: 623, 1831; Ueber die Versuchung der *Beeinflussung* des Stärkemehls durch Speichel, Arch. f. Chem. u. Meteorol. (Kastner's) **3**: 105, 1831.

[1] Walters, Waltman; and Bollman, J. L.: Experimental Acute Gastric Fistula, Arch. Surg. **13**: 578 (Oct.) 1926; The Toxemia of Duodenal Fistula, J. A. M. A. **89**: 1847 (Nov. 26) 1927.

[2] McCaughan, J. M.: Experimental Studies on the External Secretion of the Pancreas with Special Reference to the Effect of Its Complete Loss by Permanent Pancreatic Fistula: I. The Coincident Changes in the Chemistry of the Blood; II. The Mechanism of Death, Am. J. Physiol. **97**: 459 (June) 1931.

Society News.—The semiannual meeting of the Tolland County Medical Association was addressed, October 20, among others, by Drs. Millard Knowlton, Hartford, on "Infantile Paralysis" and "Undulant Fever," and Maurice M. Pike, Hartford, "Care of Paralyzed Patients."——The one hundred and fortieth semiannual meeting of the Hartford County Medical Association was addressed, October 27, among others, by Drs. Vincent F. Mendillo, New Britain, on "Trichinosis"; Stanley H. Osborn, Hartford, state health commissioner, "Anterior Poliomyelitis: The Recent Epidemic in Connecticut," and Bradley L. Coley, New York, "Hernia—Surgical and Nonsurgical Treatment."——Dr. Louis E. Phaneuf, Boston, addressed the Bridgeport Medical Association, October 6, on "Uterine Hemorrhages with Special Reference to Uterine Cancer."

GEORGIA

Personal.—Dr. Jesse L. Howell, Atlanta, was recently appointed a member of the state board of medical examiners to succeed Dr. Alfred F. White, Flovilla.——Dr. Thomas H. Johnston, Athens, has resigned as health commissioner of Athens and Clarke County.——Dr. Thomas R. Ponton, Augusta, has been appointed superintendent of University Hospital, Atlanta.

Society News.—Dr. Joseph Yampolsky, Atlanta, addressed the Fulton County Medical Society, November 5, on "The Southern White Clinic Child—A Study of 500 Cases with Special Reference to Diarrhea and Otitis Media." Dr. Emmett D. Colvin, Atlanta, gave "An Analysis of the Abdominal Cesarean Sections Performed in Atlanta from 1925 to 1930" before the society, November 19; Dr. Stuart H. Shippey talked on "The Clinical Significance of Achlorhydria."——Dr. Roy R. Kracke, Emory University, will address the Fulton County Pediatric Society, December 10, on "Present Status of the Filtrable Viruses"; Dr. William L. Funkhouser, Atlanta, will present a case report on encephalitis following smallpox vaccination.

ILLINOIS

Society News.—Dr. Clifford J. Barborka, Rochester, Minn., addressed the Peoria City Medical Society, November 13, on "Relation of Diet to Health and Disease."——A symposium on salpingitis was conducted before the Adams County Medical Society, November 9, by Drs. Frank Cohen, Earl L. Caddick and Henry J. Jurgens, all of Quincy, and John F. Ross, Golden. ——The Bureau County Medical Society was addressed, November 10, by Drs. Leon Unger and Edward A. Oliver, Chicago, on "Allergy" and "Practical Points in Dermatology," respectively.——The Pike County Medical Society was addressed in Barry, October 22, among others, by Drs. Charles D. Center, Quincy, on "The Child"; Dudley T. Dawson, Danville, "Duties and Responsibilities of the Psychiatrist to His Community."——The Tri-County Medical Society was addressed at Monmouth, October 15, by Drs. Gilbert H. Marquardt and Lowell D. Snorf, Chicago, among others, on diagnosis and treatment of vascular pains and edema of the legs and "Treatment of Peptic Ulcer and Its Complications," respectively; Dr. Harold O. Jones, Chicago, showed a motion picture with sound on "Treatment of Pelvic Infections."——The Madison County Medical Society was addressed, November 6, by Dr. Leland B. Alford, St. Louis, on "Treatment of the Common Neuroses."——The members of the Lake County Medical Society were the guests of the medical staff of the U. S. Naval Hospital at Great Lakes, November 4; Lieut. Comdr. Morton D. Willcutts spoke on "Local Anesthesia."——Dr. John E. Reed, Benton, was elected president of the Southern Illinois Medical Association at its annual meeting in Olney, November 5-6. The next session will be held in Carbondale.

Chicago

Dr. Long Resigns to Go to Phipps Institute.—The resignation of Dr. Esmond R. Long as professor of pathology at the Graduate School of Medicine of the Division of Biological Sciences, University of Chicago, has been announced; it will become effective, July 1, 1932. Dr. Long has been appointed director of laboratories of the Phipps Institute of the University of Pennsylvania, Philadelphia. Dr. Long was assistant in pathology at the University of Chicago, 1911-1913; he was assistant at the Desert Laboratory of the Carnegie Institution of Washington, Tucson, Ariz., 1914-1915. He has been professor of pathology at Chicago since 1928. He received the bachelor's degree in 1911, doctor of philosophy in 1919 and the medical degree in 1926, all from the University of Chicago.

Reorganization of University Clinics.—By action of the board of trustees, November 12, University Clinics, the University of Chicago, have been incorporated within the division of biological sciences, and placed under the administration of the dean of the division. As a part of the reorganization, Dr. Franklin C. McLean has resigned as associate dean of the division but will remain in the office of the dean as director of University Clinics. He also retains his professorship in the department of medicine, but with the appointment of Dr. Oswald H. Robertson as acting chairman of that department he has withdrawn from the administrative affairs of the department. The university also announced the appointment of Dr. Frederick W. Schlutz as the first Richard T. Crane professor of pediatrics. This professorship was endowed in 1916 by the Crane family, but no appointment has been made heretofore, pending the organization of the clinical departments on the campus.

Society News.—The Chicago Society of Allergy was addressed, November 16, by Drs. Benjamin Z. Rappaport and Tell Nelson on "Effect of Air Filtration on Pollen Hay Fever and Asthma," and C. E. Barrett, "Atmospheric Pollen Studies." ——Max Poser, Ph.D., Rochester, N. Y., addressed the Chicago Ophthalmological Society, November 16, on "Importance of Elimination of Astigmatism in Oblique Pencils and the Character of the Various Types of Corrected Lenses Pertaining to This Subject," and Dr. Theodore M. Shapira, "Heteroplastic Ossification. A Report of Two Cases of Bone Formation in the Choroid."——A joint meeting of the Chicago Heart Association and the Chicago Medical Society, November 18, was addressed, among others, by Dr. Harrold A. Bachmann on "Rheumatic Endocarditis in Children."——A symposium on prediction methods in criminology featured the meeting of the Chicago Academy of Criminology, November 12; the speakers were Ernest W. Burgess, Ph.D., and Clark A. Tibbits of the University of Chicago, and Dr. John A. Larson of the Institute for Juvenile Research.——The Chicago Gynecological Society was addressed, November 20, by Dr. William J. Dieckmann, St. Louis, on "Blood Volume Changes in Eclampsia," and Dr. Irving F. Stein and Miss Elizabeth Cope, "Trichomonas Vaginalis."——Dr. Clarence M. Hincks, director, National Committee for Mental Hygiene, will address the annual meeting of the Illinois Society for Mental Hygiene, December 4, at the Chicago Woman's Club.

INDIANA

Hospital News.—At a conference of superintendents of the Methodist hospitals in the Indiana and western Ohio area of the Methodist Episcopal Church in Indianapolis recently, it was stated that more than $1,000,000 had been expended in the care of free patients by these hospitals last year, and that more than 41,000 patients had been cared for during the same period.

Medical Care for the Unemployed.—According to newspaper reports, the medical service committee of Governor Leslie's unemployment relief commission is conducting a survey of methods of providing medical care for the state's poor sick. This work is being done to determine the manner in which the township trustees and the medical profession in each locality are handling poor relief work, the costs of service, the method of handling hospital cases and the amount of free work done by the medical profession in each county. Dr. William H. Kennedy, Indianapolis, is chairman of the medical service committee. The St. Joseph County Medical Society has established a twenty-four hour medical service for the sick in cooperation with the new Central Service Bureau, South Bend, the purpose of which is to act as a clearing house for medical charity. It is planned to have six physicians on the physician's exchange for two weeks' service; a new group will be chosen every two weeks. Complete files will be kept of all cases and a thorough investigation will be made to select the true charity cases.

Society News.—The Indianapolis Medical Society was addressed, November 10, by Drs. Murray N. Hadley and Harold M. Trusler on "Wound Healing"; November 17, by Drs. Ralph S. Chappel on "A Program for the Prevention of Deafness," and Alfred S. Jaeger, "Full Term Abdominal Pregnancy"; and, November 24, by Drs. Charles E. Wooding and Howard L. Stitt, Cincinnati, on bronchial irrigation. ——Dr. Russell M. Wilder, Chicago, addressed the Indianapolis Academy of Medicine and Surgery, November 19, on "Obesity." ——Dr. Kendall Emerson, New York, addressed the Marion County Tuberculosis Association, November 19, on the effect of economic depression on the nation-wide struggle to control tuberculosis and kindred diseases.——Dr. Robert M. Moore, Indianapolis, addressed the Howard County Medical Society, October 2, on "Relation of Heart Conditions to Surgery."——Dr. Charles A. Elliott, Chicago, addressed the Tippecanoe County Medical Society at La Fayette, November 12, on "Circulatory Failure in Acute Infectious Diseases."——Drs. Jewett V. Reed and LaRue D. Carter, Indianapolis, addressed the fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

New York City

Research Hospital Seeks Patients.—The Hospital of the Rockefeller Institute for Medical Research announces that patients with certain diseases now under investigation at the institute will be admitted to the extent of the hospital facilities. These diseases are chickenpox, measles, rheumatic fever, cardiac disease, nephritis and acute infection of the respiratory tract, including acute lobar pneumonia. Physicians are requested to communicate with the hospital before sending patients.

Courses in Psychoanalysis.—The New York Psychoanalytic Institute began operation, October 1, under the direction of Dr. Sandor Rado of the Berlin Psychoanalytic Institute. Elementary and advanced seminars for practicing psychoanalysts are offered and future plans include seminars for social service workers, introductory lectures for physicians and lectures for the public. Inquiries concerning these courses should be addressed to Dr. Monroe A. Meyer, executive director, 324 West Eighty-Sixth Street.

Lectures in Brooklyn.—Friday afternoon lectures in the auditorium of the Medical Society of the County of Kings will be as follows for the next three weeks:

December 4, "Treatment of Arthritis," Dr. Ralph Pemberton, Philadelphia.
December 11, "Cancer of the Rectum and Colon," Dr. Howard M. Clute, Boston.
December 18, "The Doctor, His Legal Rights and Obligations," Dr. George I. Swetlow, Brooklyn.

Dr. Charles P. Hutchins, Syracuse, gave the address for November 20, on "Getting the Injured Back to Work," and Dr. Howard B. Sprague, Boston, that for November 27, on "Treatment of Angina Pectoris and Coronary Occlusion."

Society News.—Dr. Harry Samuel Eagle, Baltimore, among others, addressed the New York Pathological Society, November 12, on "Precipitation Tests for Syphilis."——Dr. Louis Berman addressed the Society of Medical Jurisprudence, November 9, on "Crime and the Endocrine Glands."——Dr. Edward J. Donovan addressed the New York Surgical Society, November 11, on "Congenital Hypertrophic Pyloric Stenosis."——Drs. John M. T. Finney and Julius Friedenwald, Baltimore, addressed the Baltimore Medical Club of New York, November 12, on "Everyday Problems in the Etiology, Diagnosis and Treatment of Gastroduodenal Ulcers" and "Modern Treatment of Digestive Disturbances," respectively.——Dr. H. Burton Logie addressed the Medical Society of the County of New York, November 23, on "Basis of Proposed National Nomenclature of Disease."——Drs. William F. Verdi, New Haven, Conn., and Ira I. Kaplan addressed the Association of Italian Physicians in America, November 16, on "Carcinoma of the Large Intestine" and "Radiation Therapy in Carcinoma of the Large Intestine," respectively.——Dr. Leon T. LeWald, among others, addressed the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists, November 20, on "Syphilis of the Gastro-Intestinal Tract."——Drs. William D. Johnson, Batavia, and Henry M. Moses addressed the Medical Society of the County of Kings, November 17, on "Emergency Surgery" and "Pulmonary Neoplasms," respectively.——Dr. Arthur M. Fishberg addressed the Medical Society of the County of Queens, November 20, on "Clinical Phases of Essential Hypertension."——Dr. Charles A. Waters, Baltimore, addressed the New York Roentgen Society, November 16, on "Early Recognition of Tuberculosis of the Kidney and Ureter by Pyelography."——Dr. Joseph C. Bloodgood, Baltimore, addressed the Bronx County Medical Society, November 18, on "Benign and Malignant Tumors of the Breast."

NORTH CAROLINA

Personal.—Dr. Stephen Glenn Wilson, Dunn, has been appointed health officer of Sampson County, succeeding Dr. John D. Kerr, Jr., resigned.

Society News.—Dr. Rutherford B. H. Gradwohl, St. Louis, addressed the Buncombe County Medical Society, Asheville, November 2, on "Usefulness of the Schilling Blood Methods in Diagnosis and Treatment." Arthur I. Kendall, Dr.P.H., Chicago, addressed the society in September on filtrability of bacteria.——Dr. James W. White, New York, was the guest speaker at the meeting of the Ninth District Medical Society, Lexington, September 24, on "Strabismus in Children."——The Eighth District Medical Society met at Reidsville, October 2, with the following speakers, among others: Drs. Wingate M. Johnson, Winston-Salem, on "General Infections and Local Conditions"; Marion Y. Keith, Greensboro, "Infantile Diabetes"; Grady C. Cooke, Winston-Salem, "Peroral Endoscopy and Surgery."

PENNSYLVANIA

Changes in State Medical Board.—Three new members have recently been appointed to the State Board of Medical Education and Licensure of Pennsylvania. Drs. Arthur C. Morgan and Clarence Bartlett, Philadelphia, and Charles J. Hemminger, Somerset, have succeeded Drs. Edgar M. Green, Easton, Merl V. Hazen, Harrisburg, and William M. Hillegas, Philadelphia. Dr. Irvin D. Metzger, Pittsburgh, chairman, and Dr. Harry W. Albertson, Scranton, were reappointed.

Symposium on Pneumonia.—At the scientific meeting of the Allegheny County Medical Society, Pittsburgh, November 17, a symposium was presented on pneumonia as seen in Pittsburgh. Speakers were Mr. H. B. Meller of the bureau of smoke regulation, on "Hygienic Aspects of the Air Pollution Problem"; Drs. Charles B. Maits, "Comparative Mortality Rate of Pneumonia in Pittsburgh"; William W. G. MacLachlan, "Clinical Problem of Pneumonia in Pittsburgh," and Ralph R. Mellon, "Significance of the Blood Culture in Relation to Lobar Pneumonia." Miss Rena Eckman, director, department of dietetics, Montefiore Hospital, presented a paper on "Relation of Vitamins to Nutrition and Disease."

Society News.—Clarence M. Wolf, Ph.D., addressed the Harrisburg Academy of Medicine, October 20, on "Calcium and Glandular Metabolism."——Dr. Howard E. Milliken, coroner of Dauphin County, addressed the Dauphin County Medical Society, November 3, on the work of his office.——Dr. John H. J. Upham, Columbus, Ohio, delivered the Emerling Lecture of the Pittsburgh Academy of Medicine, November 24, on "Heart Disease and Heart Failure: The Modern Problem of Late Middle Life."——Dr. Lewis Kraeer Ferguson, Philadelphia, addressed the Northampton County Medical Society, Easton, November 20, on "Treatment of Varicose Veins and Ulcers by Ligation."——Dr. Ralph M. Tyson, Philadelphia, addressed the Luzerne County Medical Society, Wilkes-Barre, October 21, on diagnosis and management of infantile paralysis.

Health Council Formed.—Health and welfare agencies, public and private, in Pittsburgh and Allegheny County have organized the General Health Council as a coordinating body for their activities. The constitution of this organization, adopted October 27, states that its objects are:

To coordinate public health activities of public and private agencies in Pittsburgh and Allegheny County.
To cooperate with the educational programs of the legally authorized state, county and city health departments and to promote such activities of other private and public health agencies.
To serve as a forum for frank discussion of health problems, policies and plans.
To develop new and to improve present standards of service.
To secure the active support of the general membership of the member agencies for the measures agreed on by the coordinating committee.
To plan new public health activities which do not fall within the scope of any constituent agency.
To foster the development and maintenance of a bureau of authoritative health information for educational purposes.

Mr. Lester R. Perry, recently appointed executive secretary of the Allegheny County Medical Society, is acting executive secretary of the council.

Philadelphia

Mayor Commends Health Officer.—Harry A. Mackey, mayor of Philadelphia, has issued a statement commending Dr. Orlando H. Petty, appointed health officer of Philadelphia following the death of Dr. Andrew A. Cairns in September. The statement cites Dr. Petty's work in the treatment of diabetes and refers to his record in the World War, for which he was awarded the Congressional Medal of Honor as well as the Distinguished Service Cross, the French Croix de Guerre with palm and the Italian War Cross.

RHODE ISLAND

Society News.—The regular quarterly meeting of the Rhode Island Medical Society in September was addressed among others, by Drs. George A. Elliott, Providence, on "Mental Attitudes Associated with Deafness"; Henry O. Colomb, "Psychiatric Aspects of Medical Conditions," and Wilfred Pickles, "Use of Air Injection for Neurological Diagnoses."——The annual outing and dinner of the Rhode Island Ophthalmological and Otological Society was held recently at Wickford. Through the courtesy of Dr. George W. Van Benschoten, Providence, the members of the society enjoyed a yacht ride. Dr. Frank W. Dimmitt, Jr., Providence, was elected president, and Dr. Nathan A. Bolotow, Providence, secretary.——Dr. Anson B. Ingals, Providence, addressed the quarterly meeting of the Washington County Medical Society, Westerly, October 14, on "High Points in Public Health."——At the meeting of the Providence Medical Association, November 2, Dr. Alexander M. Burgess discussed recent advances in the treatment of

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 31, 1931.

The British College of Obstetricians and Gynecologists

The recently founded British College of Obstetricians and Gynecologists has held its inaugural ceremonies, at which honorary fellowships were conferred on Prof. Paul Bar of Paris, Professor Essen-Möller of Lund, and Prof. J. Whitridge Williams of Baltimore. In proposing the toast of the college, Sir Thomas Horder expressed surprise that it was not formed long ago. Obstetrics was not comparable to the more limited specialties, such as ophthalmology, laryngology and dermatology. It was more fundamental, for it had to do with the entry of a new individual into the world, with all the precariousness attaching to the first few days of existence and with all those accidents—physiologic, chemical, anatomic and infective—which may befall the expectant, actual and recent mother. Some day we might be able to boast of an academy of medicine of which the three pillars would be medicine, surgery and obstetrics. The Royal College of Physicians of London had asked the council of the new body to nominate a panel of names for examinations for the diploma, and the council suggested that the college should institute a higher diploma comparable to those of the Royal Colleges of Physicians and Surgeons.

The president, Prof. W. Blair Bell, said in reply that between 3,000 and 4,000 years ago, in Sumerian times, midwifery was a segregated and important subject, while other branches of medicine hardly existed. He hazarded the opinion that before 1945 the college would be intimately associated with the Colleges of Physicians and Surgeons, to their mutual benefit, though today men were much more concerned in not dying than in being born. The aims of the college were to improve the status of obstetrics and gynecology and the education of the physician in these subjects. The attainment of these aims would benefit the state and could not be achieved apart from the new college.

Panel Physicians and National Economy: Government Proposal Accepted

The cut of 10 per cent in the capitation fee of panel physicians, as part of the economy proposals of the government, has been mentioned before. It was again discussed at the annual conference of medical panel committees. Dr. Dain, chairman of the insurance acts committee of the British Medical Association, stated that when the new minister of health, Mr. Neville Chamberlain, invited the committee to send a few representatives to discuss the situation, he disclosed the serious nature of the national situation and said that the government proposed to accept the 24 cent reduction in the capitation fee of panel physicians recommended by the economy committee. Dr. Dain replied that if the capitation fee was reduced it would raise the merits of the amount of the fee, but if the minister was not entering on that question and was merely proposing the reduction solely from the point of view of the national emergency, a temporary reduction of one ninth would better meet the case. The minister said that he had no intention of opening the question of the merits of the fee and that what was required was a temporary reduction to meet the national emergency. It was further pointed out to him that the reduction represented a cut of something like 15 per cent, when allowance was made for the expenses relating to practice. The scheme was part of a plan of equal sacrifices by all in a national emergency and was not amenable to modifications. On this assurance it was accepted. But later the government modified the proposals as regards other classes: the army, navy, police and school teachers. The minister was therefore asked to make the reduction 10 per cent after deducting expenses, but the government was unable to agree.

A motion protesting against the action of the representatives in agreeing to the cut in the first instance was rejected by an overwhelming majority. A resolution was then moved approving of the action taken in the negotiations with the minister, recognizing the special sacrifices which panel physicians were called on to make, and accepting the 10 per cent reduction as their contribution in the exceptional circumstances in which the nation finds itself, but without prejudice to the future consideration of the present capitation rate on its merits. An amendment protesting against the reduction was discussed with some acrimony at one point but was rejected, and the resolution was carried by an overwhelming majority. Patriotic motives in the present emergency, the excellent effect produced on the public attitude toward economy by the acceptance of the cut in the first instance, and the good position of the profession for later reopening the question of remuneration were weighty reasons. Finally a resolution that the question of the adequacy of the capitation fee be taken up with the ministry of health at the earliest suitable moment was carried unanimously.

Changes in the Jaws of the English

In a lecture delivered at the Royal College of Surgeons, Sir Arthur Keith said that years ago he began to notice modern changes in skulls. Our present conditions of life were a huge experiment. The industrial revolution, life in cities and changes in diet must affect our bodies. But not until archeologic knowledge became precise, twenty or thirty years ago, was there any certain way of dating ancient graves and determining the period to which skulls belonged. He expected that narrowing of the palate was due to the conditions of modern life, as this condition is never found in the skulls of the Saxon or pre-Saxon period. For comparison he took fifty ancient British skulls, buried before the Norman period, and the same number of modern skulls, chiefly of Londoners of the eighteenth and nineteenth centuries. In each case, half the skulls were male and half female. The result was to strengthen his conviction that definite changes are being produced in our teeth, jaws, noses, orbits, cheeks and other points in the conformation of our faces. But such changes are not found in every one. In no ancient skull was there a pathologic degree of contraction of the palate, while four of the twenty-five modern male and nine of the twenty-five modern female skulls showed contraction. Misplacement of the front teeth occurred with the same degree of frequency in the modern skulls. Failure of formation of the third molar is an index of dental degeneration, for retrograde changes are first shown in the member of a series last formed. In the twenty-five ancient male skulls there should have been fifty upper third molars; there were only forty-four; in the twenty-five ancient female there were seven failures to form, and five molars had formed but failed to erupt. Thus in pre-Norman times there was a tendency among a few men and a considerable number of women toward reduction of the teeth. But in the modern skulls the tendency was more widespread; there were fifteen instances of undeveloped third molar in the upper jaw and five of arrest of development in males, and almost the same number in females. In a collection of modern skulls, the teeth, jaws and faces may be found as robustly and symmetrically developed as in ancient skulls but in diminished proportion. As a result of this and other investigations, Sir Arthur Keith has found that in all sections of the British population at least 25 per cent show gross disturbance of the growth of the palate or eruption of the teeth.

At one time he held the general opinion that contraction and vaulting of the palate was due to obstruction of the nasal airway by adenoids and enlarged tonsils. But prolonged inquiry into the disorders of growth of the palate and jaws, and the cats excellent as rat hunters, which, at Havre more particularly, have demonstrated their capacity for rat destruction. In Paris, where the rats multiply in the sewers, and where they destroy even telephone wires, one employs preferably, as in Morocco, traps baited with slices of bread spread with a phosphorated paste. The traps must be set with great care, no human hand touching either the bread or the traps. They are prepared with metal pinchers and the persons setting them wear rubber gloves; otherwise the rats, which are wary and easily catch a human scent, keep away from the traps. Every week the body of a rat, together with the fleas found on it, is examined at the special laboratory of the prefecture of police to ascertain whether or not the plague bacillus is present, and, strange to relate, the bacillus is found not so infrequently, in spite of the fact that no trace of plague exists in Paris. The public has been urged to use tight-fitting covers on all receptacles containing garbage, left at the curb every evening, to be collected before morning by the scavenging department: for it has been noted that it is in garbage cans, if left open, that rats find their food. The conventionists took a trip to Havre to inspect Dr. Loir's breeding place for rat-catching cats.

The Second Centenary of the Foundation of the Royal Academy of Surgery

In celebration of the second centenary of the foundation of the Royal Academy of Surgery, special ceremonies were held, October 7, at the Academy of Medicine, with the president of the republic in attendance. Professor de Lapersonne, the president of the Academy of Medicine, gave a short survey of the history of the society, which was founded in 1731 under Louis XV, J. Petit having been the first president. After creation of the Academy of Medicine under Louis XVIII, it became fused with that body (1820). Then, in 1843, without its connection with the Academy of Medicine being severed, of which the surgeons continue to form an important section, the latter founded a special society of surgery, which has achieved considerable success, its meetings being held every week, and new members being chosen at hotly contested elections. In addition, every year, in the fore part of October, a large congress of surgery is held, which is always attended by a large number of foreign surgeons. At the ceremonies recently held, addresses were delivered by Mr. Lapersonne, president of the Academy of Medicine; Professor Lenormant, president of the surgical society, and Professor Jean-Louis Faure. In the vestibules, a curious collection of old surgical instruments was displayed, together with historical records and interesting autographic documents taken from the archives of the former Royal Academy of Surgery.

The International Congress of Comparative Pathology

The second International Congress of Comparative Pathology was held, October 14-18, at the Faculté de médecine in Paris. The first congress was held in 1912. The war and various other circumstances intervened to prevent until this year the holding of a second congress. The president of the republic and Mr. Landry, minister of labor, were in attendance. An original idea carried out by the society that organized the congress is that its membership consists of physicians, veterinarians and botanists, so as to afford an opportunity to study pathologic problems simultaneously in man, animals and plants, an important collaboration in obtaining knowledge of certain diseases, particularly cancer. The congress was attended by many foreign scientists, among others, from the United States, J. R. Mohler, George W. McCoy, Milton J. Rosenau, M. B. Waite, R. L. Jones and V. A. Moore. Outside of Paris, the conventionists held a meeting at the Ecole vétérinaire of Alfort, and another at the Centre anticancéreux de Villejuif. The topics on the program were: (1) tuberculosis and vaccination, (2) brucellosis in man and in animals, (3) milk and pathogenic agents, (4) mineral deficiencies, (5) ultraviruses, and (6) helminthiases. Numerous communications were presented, chief of which were the following: preventive vaccination against tuberculosis with the B C G vaccine, Professor Calmette; cytologic study of plants affected with deficiency diseases, Mr. Dufrénoy; antituberculosis vaccination in animals, Professor Gerlach of Vienna; therapeutic antituberculosis vaccination with serum and toxic tuberculous plasmas, Dr. P. Kfouri; bovine undulant fever, Martin Kristensen, Copenhagen; brucellosis in man, Prof. Oluf Bang, Copenhagen; the composition of milk, Dr. Lesné and Mr. G. Dreyfus-Sée; diseases of animal origin transmissible to man through milk, Porcher and Tapernoux of Lyons; mineral deficiences and mineral disequilibriums, Mr. Simonnet and Mr. Randoin; mineral deficiencies and their relations with the syndromes characterized by mineral disorders, Professor Sjollema of Utrecht; diseases due to mineral deficiency in domestic animals, Prof. J. Wester of Utrecht; American researches pertaining to plant diseases due to mineral deficiencies, Mr. Harry B. Humphrey of Washington; hibernation and the reappearance of cryptogamic diseases in plants, Prof. Jacob Ericksson of Stockholm; influence of the hydrogen ion on the development of phytopathogenic bacteria, Dr. W. Kotte, Freiburg im Breisgau; diseases due to viruses of cultivated plants, Mr. Quanjar, Wageningen, Netherlands, and Dr. von Brehmer, Berlin; transmission of the virus of the mosaic disease of the kidney bean through the pollen, Donald Reddick (Cornell University); the mosaic disease in the grapevine, Professor Stranak, Prague; the pathogenesis and therapeutics of helminthiases, C. Joyeux and J. Baer; intestinal parasitism among the colonial natives in France, Lieut. Col. Stevenel, M.D.; intestinal parasitism in the dark races of French possessions in Africa, Mr. Lefrou, general medical inspector for the colonies; diseases of plants caused by nematodes, Dr. Van Slogteren.

BUENOS AIRES

(From Our Regular Correspondent)

Sept. 21, 1931.

A Medical Week in Buenos Aires

The Jornadas Médicas, a medical week organized by the Asociación Médica Argentina, was held in Buenos Aires, August 17-25, 1931. The meeting was attended by delegates of the government and of the medical profession from several countries, as follows: Lord B. G. A. Moyniham, Sir Almroth Wright and Dr. John Freeman, from England; Dr. E. Garcia del Real, from Spain; Drs. Blanco Acevedo, Escardó y Anaya and García Lagos, from Uruguay; Dr. A. Austregesilo, from Brazil; Drs. F. Legueu, P. Nobecourt and G. Dumas, from France; Drs. G. Donati and A. Castiglioni, from Italy, and Drs. A. Eckstein and K. Fahrenkamp, from Germany. Six official speakers delivered lectures of thirty minutes each every afternoon. When the discussion on the official lectures were finished, nonofficial lectures, prepared by the medical societies of Argentina and by the teachers of the School of Medicine of Buenos Aires, were also given. The main subjects of the deliberations during the first day were as follows: Dr. M. Castex stated that the red and white blood formulas are controlled by the thalamencephalon. Lord Moyniham spoke on old and modern medicine and on surgery of the bile ducts. Sir Almroth Wright gave demonstrations of his own technic for the treatment of war wounds; Dr. Bonorino Udaondo lectured on the mobile duodenum as observed in clinical practice; Dr. F. Legueu spoke on the importance of traumatic orchitis from the point of view of compensation laws; Dr. G. Araoz Alfaro gave a thorough discussion on the entire problem of infant mortality in Argentina. The second day, Dr. J. C. Navarro lectured on respiratory disturbances in syphilitic infants; Dr. E. Blanco Acevedo spoke on the removal of cancer of the breast, and he showed his own technic, which follows the most of infection is reduced to one sixth if the patient was bitten through the clothing. A true opinion on the effectiveness of various vaccines cannot be obtained until all the cases in which rabies in the biting animal has been scientifically demonstrated are reported in detail, and not merely the cases that result unfavorably. Scientific authentication in cases of persons bitten by animals is not accomplished at present, to any great extent, by any other country besides Germany, and even in Germany positive demonstration of rabies was effected in less than 50 per cent of the cases. According to German observations in 1929, only two out of 148 persons bitten died, and in one case it is doubtful whether from rabies. Since at least one third of the biting animals were affected with rabies and in half of the persons bitten the injuries were serious, the favorable effects of the treatment are well established, being promoted to a great extent by the promptness with which it was applied—in from 73 to 80 per cent of the cases having been begun within a week after the biting occurred.

University Clinic in Berlin to Be Closed

A perturbing event of this critical scientific period is the closing of one of the university surgical clinics in Berlin, which is set for April 1, 1932. The ministry of public education was induced by economic considerations to take this step. Only the policlinic will continue to function, but this will receive only ambulatory and no resident patients. The dismissal of the seventeen assistant physicians of the surgical clinic will take effect, April 1. Through the closing of this clinic 198 beds will be discontinued. An endeavor is being made to induce Professor Bier, who will soon complete his seventieth year of life, to assume the directorship of the policlinic during the transition period. After April 1, Berlin will have only one university surgical clinic, that at the Charité Hospital, the director of which is Geheimrat Prof. Dr. Sauerbruch.

For a year or more, the closing of the university surgical clinic in Ziegel Street has been a chief topic of conversation in medical circles. This clinic, which for many years has been the proud exponent of modern medicine, is the victim of this period of crisis. The building in which it is housed is greatly in need of repair, and for many years a reconstruction has been contemplated, which, under present conditions, would have cost as much as an absolutely new building, and for that the money is lacking. A year ago, Geheimrat Bier, the present director of the clinic, although he had about reached the age for retirement, was asked to retain the directorship for another year, that is, until April 1, 1932, as the funds were not available at present for the reconstruction long since planned. From a purely educational point of view, it is a disgrace to allow such an important institution, where such men as Langenbeck, E. v. Bergmann and Bier spent so many fruitful years, to disappear from the face of the earth.

Changes in Family Life

The professional range of the physician is closely connected with the status of hygiene, and especially of social hygiene, as particularly the researches and discussions of the last decade have shown. Hence, emphasis must be laid on the fact that the structure of the family and of the family life has undergone some marked changes since the prewar period. Thirty years ago, the creation of collective households, of apartment houses with community kitchens, was advocated at all congresses of women. The married woman was thus to become free to pursue a gainful occupation and to become economically independent of her husband. That was to be the initial step toward the needed equalization of the sexes. It is interesting to note in recording statistical facts in regard to the family how the German people turns away from those theories that do not harmonize with its mental and psychic aptitudes. Dr. Annemarie Niemeyer, in connection with the researches on the family undertaken by the Deutsche Frauenakademie, collected material on the structure of the German family, from which it appears that 95 per cent of the population of Germany lives in familial households. Only 2.5 per cent live in institutional households, and 1.6 per cent in single, separated households. The number of familial households has increased considerably during the past decades—much more than the number of single, separate households. In addition to the force of circumstances (poverty, scarcity of dwellings), no doubt a natural tendency to live in large family groups is a factor in the production of this result. In any event, there is no evidence of any tendency to turn away from the family or of fleeing from family ties. On the contrary, statistics show that, during the period from 1910 to 1928, men showed an increased desire to marry. They marry also earlier than formerly, whereas the average age of brides has risen. While partly due to the economic necessity of creating the necessary basis for marriage, the marriage of men to older women is partly a trend of the times, which demand women of independent character and presuppose in marriage greater equality between the parties to the contract in place of subordination of one partner to the other. Only about 12 per cent of the women in Germany remain single. The excess of women over men, which existed before the war but was greatly exaggerated by the results of that conflict, is not as marked as it was a few years ago and in a few years more conditions will again be normal in that respect. In Germany's population of approximately 64,000,000, there are 15,700,000 housewives (that is, married women, including widows and divorcees). Of that number, 4,700,000, or more than 25 per cent, are devoting full time to occupations not connected with their own domicile. The percentage of wage-earners in a family, on the average, is highest among the employees and the civil servants, but it is almost as high among the industrial workers—about 55 per cent. On the other hand, there are 9,000,000 wives (husbands living), and 2,000,000 widows and divorcees devoting themselves exclusively to family, or household, tasks. Married persons live longer than single persons. This applies to both sexes; but as to the underlying reasons for this fact no information is forthcoming. The growing eagerness to marry has not, however, been accompanied by an increase in the number of offspring—quite the contrary. Various reasons are assigned for this condition of affairs.

Marriages

Carl I. Gillies, Cedar Rapids, Iowa, to Miss Katherine Marie Loomis of Ann Arbor, Mich., in Lincoln, Neb., October 2.

William W. Stevenson of Rockwell City, Iowa, to Miss Isabelle Hollister of Fort Dodge, October 14.

Albert E. Williams, Boyceville, Wis., to Miss Mary Frances McGraith in Glenwood City, recently.

Angelo Louis Gentile to Miss Queen De Frances Hippolitus, both of New Haven, Conn., May 25.

Garold Graham Henning, Iowa City, to Miss Ada Hemingway of Clinton, Iowa, August 22.

Earl Le Roy Burky, Baltimore, to Miss Mary Dixon Norris at North Bend, October 31.

Frank R. Mehler, New London, Iowa, to Miss Margaret Marten of Burlington, October 1.

Earl Richard Templeton, Buffalo, to Miss Emma Louise Wehr of Baltimore, November 7.

Casimir Arthur Cywinski to Miss Loretta Lucille Konopa, both of Chicago, November 14.

Robert Edward Gross, Baltimore, to Miss Mary Louise Orr of St. Paul, June 11.

William McCulloch Tuttle to Miss Geneva Duvall, both of Chicago, September 19.

William A. Bockoven, Jr., to Miss Ruby Iverson, both of Cresco, Iowa, October 1.

George Viner Witney, Houston, Texas; Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; served during the World War; aged 70; died, July 23, of heart disease.

Hiram McGowan ⊕ Harrisburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1868; Civil War veteran; aged 88; died, October 31, of heart disease.

William Henry Bunnell, Bridgeport, Conn.; College of Physicians and Surgeons in the City of New York, 1879; aged 73; died, October 29, of cerebral hemorrhage.

Waldo Henry Tyler, Manchester, Mass.; Harvard University Medical School, Boston, 1887; aged 74; died, September 21, of myocarditis and chronic arteriosclerosis.

Kenneth I. Sutton, Centerville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1884; aged 73; died, September 25, in a hospital at Nashville, of senility.

Charles M. Henn, Chicago; Hahnemann Medical College and Hospital, Chicago, 1890; aged 82; died, October 10, of myocarditis, endocarditis and cardiac asthma.

Thomas Chisholm, Toronto, Ont., Canada; Victoria University Medical Department, Coburg, 1881; aged 90; died, October 1, of heart disease and pneumonia.

Ewen McEwen, Smith Falls, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1887; aged 76; died recently, in the Public Hospital, Chatham.

Leancy Bertram Rupert, Cabincreek, W. Va.; Louisville (Ky.) Medical College, 1886; aged 68; died, September 7, in Charleston, of chronic myocarditis.

Wallace G. Birdsong, Tarpley, Tenn.; Vanderbilt University School of Medicine, Nashville, 1895; aged 62; died, October 21, of cerebral hemorrhage.

Herbert T. Webster, Los Angeles; Eclectic Medical Institute, Cincinnati, 1869; aged 88; died, September 25, of diabetes mellitus and chronic nephritis.

William Moershel, Homestead, Iowa; State University of Iowa College of Medicine, Iowa City, 1888; aged 66; died, October 27, of heart disease.

Ulrich M. Griffin, Girard, Kan.; Homeopathic Medical College of Missouri, St. Louis, 1880; aged 76; died, October 25, of cerebral hemorrhage.

Benjamin Taylor Church, Brookline, Mass.; Dartmouth Medical School, Hanover, N. H., 1878; aged 80; died, October 20, of heart disease.

Thomas Francis McMahon, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1882; aged 69; died, October 25, of uremia.

S. Byron Buckley, Denver; Hahnemann Medical College and Hospital, Chicago, 1885; aged 69; died, September 25, of angina pectoris.

David Hawthorne Gould, Fenelon Falls, Ont., Canada; University of Toronto Faculty of Medicine, 1879; aged 79; died, in June.

William N. Nolan, Kaukauna, Wis.; Rush Medical College, Chicago, 1894; aged 61; died, October 17, of cerebral hemorrhage.

Lyman A. Sayles, South Lyon, Mich. (licensed, Michigan, 1901); aged 87; died, October 19, in Grand Rapids, of cirrhosis of the liver.

Andrew McCracken, Zillah, Wash.; Kentucky School of Medicine, Louisville, 1891; aged 70; died, August 22, of cerebral hemorrhage.

Ernest Winstanley Ellis, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1921; aged 38; died, October 5.

Narcisse Lacerte, Levis, Que., Canada; School of Medicine and Surgery of Montreal, 1863; aged 92; died, September 18.

Adam Scott Beuglas, Hamilton, Ont., Canada; Victoria University Medical Department, Coburg, 1890; aged 77; died, July 5.

Robert C. Meade, Castlewood, Va.; College of Physicians and Surgeons, Baltimore, 1892; aged 64; died, October 10.

Frederick W. Devitt, Deep River, Conn.; Cleveland Medical College, 1897; aged 58; died, September 3.

CORRECTION

Dr. George Washington Campbell Is Not Dead.—The report of the death of Dr. George Washington Campbell of Flora, Ill., in THE JOURNAL, Oct. 17, 1931, was erroneous. The basis of our report was a notice in the *Illinois Medical Journal.*

Correspondence

PAPER WORK FOR HOSPITAL ADMINISTRATORS

To the Editor:—There is no specialty in medicine that may be excused from its obligation to the bedside point of view. Administrative medicine as one of the more important public health activities has a clinical aspect which, in a peculiar sense, is the final reason for its existence as a specialty. The successful hospital constructionist is the man with the bedside point of view. Hospital equipment is more obviously related to the bedside. Professional and business staff organization, if it is not planned and later adjusted to the needs of the patient, defeats its own purposes. Hospital administration, which provides the experience on which construction, equipment and organization are finally based, must concern itself primarily with the bedside, for in the last analysis the hospital exists for the benefit of the patient, all other benefits that may be derived in connection with his care coming in the nature of by-products. The simon-pure administrator, who is a technician only and lacks the social mind, should be properly identified, and an appointment should be made which will give the hospital an opportunity to derive the greatest benefit from its communal relationships.

When society made the decision that patients lacking financial means with which to purchase adequate care could not be treated at home during acute illness with the best results, and considered it for the interests of the sick (and incidentally for the doctors' interests) to herd them in groups where they could be treated on a time-saving and efficiency basis, an extraordinarily great risk and responsibility were assumed. Large institutions must unfortunately be subjected to various complicated forms of government, and the interests of the individual must often be sacrificed to the interests of the group, if confusion and even anarchy are to be avoided; and government (rightly or wrongly) naturally imposes greater or less restraint, which, in turn, rarely brings comfort when it must be applied to the sick and their friends. There is something of a vicious circle which is thus engendered and against which the administration of the hospital must always be on guard. While restraint may not be avoided altogether, much can be done to mitigate its effects. The most potent remedy lies in the personal type of supervision.

The sick man who leaves his home, where he held the center of the stage and was the chief protagonist in the domestic drama, is often compelled to lose his identity when he is admitted to our large establishments. In the wards he finds himself one of the many and is required to show consideration for his sick neighbors, with whom he must share the sympathies and attention of the staff. He naturally craves for the personal interest of some one who will replace those who would never have left his side or relaxed in their solicitude for his welfare if he had stayed at home. The administrator of a hospital, if it is a small one, or his immediate assistant, if the hospital is a large one, should personally know every patient and contrive so to plan his working day as to give to those whom a trusting community has turned over to his care that rare feeling of confidence lacking to many who do not enjoy a personal acquaintance with a member of the staff.

The greatest blessing that may be vouchsafed to the sick who are confined in the wards of the hospital is the personal interest of the hospital administrator in the bedside, for that is where the lessons in humanity are to be learned. If the hospital is so organized that an excess of "paper work," which almost never relates to the patient's well being, keeps the administrator away from the bedside, it should be taken as a danger signal that all is not well with the plan or the personnel of the organization and that the time has come for readjusting the relation of the

DERMATITIS FROM POTASSIUM MERCURIC IODIDE SOAP —INDURATION FROM MERCURIC SALICYLATE INJECTION

To the Editor:—1. I have a patient who after using Neko soap developed a severe dermatitis on the hands and forearms. May I have some information with regard to the incidence of dermatitis following the use of Neko soap? 2. Is one likely to get a marked local reaction following the use of mercuric salicylate intramuscularly? Two of my patients have recently developed quite severe painful indurations within thirty-six hours after injections. The preparation is over a year old. Would there be any connection between this point and the severe reaction? Please omit name.

M.D., Washington.

Answer.—1. Neko soap contains potassium mercuric iodide. We have no statistics on the incidence of dermatitis from Neko, but hypersensitiveness to mercury preparations is not rare. Is the patient sensitive to other forms of the drug? The alkali base of the soap may enhance the irritation.

2. A marked reaction to intramuscular injections of mercury develops in some patients after every injection, so that this method of treatment has to be given up. In the opinion of a competent authority on pharmacology it is quite unlikely that the age of the preparation has anything to do with it. These preparations are months, sometimes years, old when sold and so far as is known have not developed irritating properties after long keeping.

TREATMENT OF SYPHILIS

To the Editor:—In January, 1931, a white woman, aged 23, was referred to me by her previous physician, when she moved to this vicinity. Three and one-half years previously, treatment was started in the primary stage. The serologic results were strongly positive at this time. The primary lesion healed promptly, and since that time there has been no evidence of syphilis, except persistent Wassermann and Kahn tests, both 4 plus. The physical examination is negative. I have been advised that her former physician administered eighty injections of neoarsphenamine, with the usual mercurial and potassium iodide courses in the course of three years with a few injections of a bismuth compound. I believe further treatment with neoarsphenamine not advisable, and have administered twenty injections of thiobismol (P. D. & Co.), but the reaction is still positive May I ask how this case can be treated to reverse the reaction and what preparations and dosage should be used? Please omit name.

M.D., Iowa.

Answer.—In Wassermann-fast cases even intensive treatment may fail to reverse the serologic reaction. In view of the negative physical examination, treatment should be intermittent. Eight or ten injections of a bismuth preparation should be given twice yearly with occasional courses of iodides. Too much attention should not be placed on the positive Wassermann reaction. A spinal fluid examination should be done at some time. Any of the standard bismuth preparations described in New and Nonofficial Remedies for use in syphilis may be used.

ULCERATIVE COLITIS WITH RESISTANT ULCERS OF SKIN

To the Editor:—A man, aged 54, has suffered for the last ten years, at three-year intervals, from ulcerative colitis with blood and mucus in the stools. For two or three years he felt well and the condition cleared up under diet and some form of medical treatment. Three years ago he developed ulcerations of the skin, legs and abdomen. This condition persists. The ulcers start as small sores having the appearance of a boil, the center gets necrotic, there is a circular area of redness, and the edges of the skin are undermined. This red area sloughs off and the condition goes on until the ulcers are from 2 to 4 inches in diameter. The laboratory diagnosis was some form of fungus infection. The Wassermann reaction is negative. Tests for tuberculosis and carcinoma are negative. The ulcers resist all treatment. Use of the deep cautery in the healthy skin around the ulcer area stopped the progress of ulceration three years ago but this time has no effect. The patient has had potassium iodide and calcium therapy; internally, mercurochrome-220 soluble, 2 per cent; 1 per cent antimony and potassium tartrate, intravenously; locally, potassium permanganate, metaphen and gentian violet. Can you suggest some form of treatment? Please omit name.

M.D., Wisconsin.

Answer.—The combination of ulcerative colitis and resistant ulcers of the skin suggests two groups of cases, those reported by Engman and Heithaus (*J. Cutan. Dis.* **37**:715 [Nov.] 1919), caused by one of the amebas, and those recently reported by Brunsting, Goeckerman and O'Leary (*Arch. Dermat. & Syph.* **22**:655 [Oct.] 1930) as pyoderma gangrenosum. If due to an ameba, the organism should be present in pus from beneath the overhanging edges of the ulcers. If found, emetine is indicated.

If no amebas can be found, the measures found by Brunsting, Goeckerman and O'Leary as most effective can be tried. General treatment consisted of acetarsone by mouth, general ultraviolet irradiations, and the intravenous injection of typhoid vaccine to produce a moderate febrile reaction. Too severe a reaction, in one instance, seemed to cause a slight exacerbation of the disease. In anemic patients, blood transfusion was beneficial.

Locally, prolonged warm baths, or sulphur baths consisting of a dilute mixture of precipitated sulphur, sulphuric acid and sodium thiosulphate were helpful. A paint of dilute aqueous solution of gentian violet and acriflavine hydrochloride was more effectual than anything else in checking the spread of some of the ulcers. The skin healed when the bowel condition improved, and recurred with bowel recurrence.

LOW BASAL METABOLISM AND OBESITY

To the Editor:—Can you give me some advice and assistance with a stubbornly persistent low basal metabolism? It began at 26, 27 and 28 minus on three alternate days. With thyroxine beginning at 0.2 mg. and increasing to 1 mg. daily, it was raised to minus 7. With a dosage of 0.2 mg. it dropped again to minus 23, at which point it is practically impossible to reduce it with any ordinary reduction diet. In addition to the thyroxine, a 1 cc. ampule of parathyroid extract weekly, and a combined *anterior and posterior pituitary preparation* were used. There seems to be a water retention problem also in this case of persistent obesity, and theocin seems to increase the output. All manner of diets have been used, including three trips to sanatoriums with weighed and measured diets and periods of fasting. The problem is how to bring the basal metabolism up to normal and keep it there. Any advice or suggestions will be much appreciated. Please omit name.

M.D., Florida.

Answer.—In a stubborn type of case such as this, the "ordinary reduction diet" may be a bit ambiguous. For every patient a sufficiently low caloric diet can be figured to secure reduction. The procedure advocated by Evans and Strang (*Am. J. M. Sc.* **177**:339 [March] 1929) of figuring the diet of the ideal instead of the actual weight for a person's given age and height and then reducing the fat to the minimum has been found by many workers to be an efficient reducing diet. In addition to such a low diet, the water balance must be carefully controlled, and in some instances salt restriction is helpful. The most valuable endocrine product, of course, is thyroid or thyroxine, and this can be pushed to the point of a normal metabolism. It is doubtful whether the other endocrine glands have any real therapeutic value, *although occasionally one sees reports of successful* therapy following the combination of thyroid and some of the others. It should be understood that the diet by itself will probably not bring the metabolism up to normal, and even thyroid may not keep it there unless the thyroid is continued.

THROMBO-ANGIITIS OBLITERANS

To the Editor:—In The Journal, August 29, appeared a query relating to the treatment of ulcers and gangrene in thrombo-angiitis obliterans. Although it is known that the treatment of this disease is not yet established on a definite basis, certain statements were made in the reply which deserve comment. The statement that "the most efficient means for increasing the amount of blood in the distal parts of the extremities is the use of fever" can be made only when it is compared with other methods which have been used by other investigators in this field. The commentator apparently has overlooked the fact that there are other methods of increasing the supply of blood in the extremities which do not have the disadvantages of fever. I might mention hypertonic saline solution intravenously, diathermy, hot sitz baths and postural exercises. That the use of typhoid vaccine in these cases is often attended with the danger of sudden thrombosis in previously patent arteries should not commend this form of treatment as a routine procedure. Such a reaction was reported by Barker of the Mayo Clinic in The Journal, September 19, in which thrombosis of the femoral artery occurred during the period of chill following the typhoid injection. Another case of thrombosis following the typhoid injection was reported by Allen and Smithwick in the *Journal of the Michigan State Medical Society* in January, 1929 (**28**:38). I have also seen a similar case of sudden *thrombosis necessitating immediate amputation* of the leg following a typhoid injection. Therefore it seems wrong to recommend this form of treatment as a routine procedure in view of the dangerous results one may encounter.

Another statement which deserves comment is the following: "If favorable results are not obtained with this method [typhoid injection] the prognosis is not good for the preservation of the limb." My experience with extensive gangrene convinces me that this statement is not accurate. I have seen at least three cases of extensive gangrene that have not responded to typhoid injections completely healed with simpler therapy. In each of these cases the oscillometric readings at each ankle were 0.

The statement that "if marked increase of surface heat occurs in the affected digit with fever, pain is relieved and healing of the ulcer is evident, consideration of lumbar sympathic ganglionectomy is indicated" seems somewhat inconsistent. If pain is relieved and the ulcer is healing, why submit the patient to an operation of such magnitude and risk if the local condition is improving without such an operation? One gains an impression from such a statement that a lumbar sympathectomy is a minor procedure and should be used in every case of thrombo-angiitis obliterans that shows signs of improving spontaneously. I cannot conceive of the logic of such a procedure. In other words, I wish to emphasize the fact that good results can be obtained with simpler methods, which should be tried before any major operative procedures are contemplated.

Saul S. Samuels, M.D., New York.

crowned with success in the so-called anaglyph process. The principle is to prepare two positives from the stereo negatives and to reduce them to the desired size. One is colored red, the other green. One is printed over the other and the picture is viewed with red-green spectacles; each eye sees only one picture, thus obtaining stereoscopic effect. Certain precautions are necessary in viewing the pictures. Attention is called to the fact that each picture should be viewed for at least five minutes. A brief atlas illustrates eight cases in which pathologic changes in the lungs may be observed stereoscopically with the aid of paper spectacles that accompany the book. This method has not been satisfactory; it certainly does not compare with the effect obtained with a regular stereoscopic apparatus.

The Causation of Chronic Gastro-Duodenal Ulcers: A New Theory. By J. Jacques Spira, M.R.C.S., L.R.C.P. With an introduction by Sir Humphry Rolleston, Bart., G.C.V.O., K.C.B., Physician in Ordinary to H. M. The King. Cloth. Price, $2.50. Pp. 78. New York: Oxford University Press, 1931.

The author presents a new theory of the causation of peptic ulcer. In all the previous discussions on the etiology of ulcer formation, the factor of food was not considered, except so far as the simple points that it must be well comminuted and that it must prevent the formation or reduce the amount of free hydrochloric acid. He brushes aside the many theories presented by showing the lack of value of any of these in the treatment. Gastro-enterostomy is followed by a high percentage of gastrojejunal ulcer, and resection is fraught with too high a mortality. He states from his perusal of the literature that fats delay digestion and at first depress but later increase the secretion of gastric acidity. Bile has no function in reducing acidity. Quoting some recent work of MacLean, he further states that duodenal regurgitation has on the whole no influence on gastric acidity. Bile is a definite gastric irritant but is harmless in the absence of a high gastric acidity. Fat in the stomach delays gastric emptying, increases gastric acidity, provokes duodenal regurgitation into the stomach, and, as bile is an irritant of the pyloric mucosa, it causes pylorospasm and hypertonus. Here, then, are all the factors necessary to produce ulcers, of which the combination of hyperchlorhydria and the presence of bile are the worst offenders. The occurrence of ulcers in several members of one family is not due to heredity or constitution but to the same food factors. Seasonal variations in ulcers are due likewise to food factors. More fat is consumed in the cold seasons. The author cites many case reports in which, on lowering the intake of fat, the patients made an extraordinarily rapid recovery. He says that any one comprehending the rationale of the theory can master the basic principles that will guide him in the choice of foods. This is an ingenious theory. There is too much contradictory evidence for the acceptance of the basic principles as a fact. The author seems to accept the evidence that fits in with his theory. Clinical experience with a large number of patients by many physicians will after all decide the validity of the claims of the author.

Hay-Fever, Hay-Asthma: Its Causes, Diagnosis and Treatment. By William Lloyd. Third edition. Cloth. Pp. 124, with illustrations. London: Straker Brothers, Ltd., 1931.

This little volume is written by a nose and throat specialist with more than thirty years of experience. The first and second editions appeared in 1907 and 1908, and a perusal of the third edition shows that the author has changed his ideas little, if at all. He treats all his hay fever patients with electrocautery or chemical cautery of "hypersensitive" areas in the nose, and he states that he cures most of them and relieves practically all whom he does not cure. He has twenty-six case reports, almost all with "cures." Many of these cases occurred in 1905, 1906 and 1907, yet the author does not state the condition of any patient for a period longer than three years. Are they still free from symptoms or did they relapse? The author is silent on this most important point, a silence which does not highly recommend the cautery treatment he advocates. He has apparently not kept up with the tremendous advances in allergy, giving little space to these and hardly mentioning skin tests at all. He writes not a word about pollen extract injections but stresses the poor results from Dunbar's Pollantin, long since abandoned by almost every one. He speaks a little about hay fever in America but believes it is due to "Indian Corn and the Roman Wormwood"; he does not even mention ragweeds. There are two excellent illustrations and the description of symptomatology is good. The book is disappointing.

Demonstrations of Physical Signs in Clinical Surgery. By Hamilton Bailey, F.R.C.S., Surgeon, Royal Northern Hospital, London. Third edition. Cloth. Price, $6.50. Pp. 277, with 318 illustrations. New York: William Wood & Company, 1931.

Because of a growing tendency on the part of the modern graduate in medicine to depend on laboratory and other auxiliary reports for a diagnosis, the author has attempted to point out the importance of physical signs in surgical diagnosis. Basic physical signs are first described. There is a general chapter on tumors, ulcers, fistulas and cellulitis. The various regions of the body are considered separately; the common surgical conditions, including injuries, are discussed, and a method of diagnosis of each condition is given through some physical signs or methods of examination which may be quite characteristic. There is a special chapter on gangrene and surgical diseases of the bones, spine and peripheral nerves. Numerous and excellent photographs of the methods of examination accompany the discussion in the text, which is brief and limited to the important points. While the importance of a good history is not overlooked, the author particularly stresses the necessity of a thorough knowledge of anatomy and pathology, together with clinical experience. The book offers a fascinating review of surgical conditions and demonstrates that the art of surgical diagnosis is based on scientific knowledge.

Les infectiones humaines à bacilles parathyphiques aberrants. Par le Dr. Marcel Monnerot-Dumaine, diplomé de l'Institut de Médecine Coloniale. Travail du service du Professeur P. Teissier (clinique des maladies infectieuses). Paper. Pp. 132. Paris: Jouve & Cie, 1930.

The main purpose of this book seems to be to call attention to the importance of the relatively unusual or, as the author terms them, the aberrant paratyphoid bacilli. The numerous varieties that have come to be recognized in addition to the classic A (now Salmonella paratyphi) and B (S. schottmülleri) types constitute a bewildering tangle of names and characteristics and certainly need to be standardized and analyzed in orderly fashion. This author has not sufficiently appreciated the magnitude of his task; while he has made some attempt at precise description and differentiation, he has not succeeded in understanding and defining the group nearly as well as Bruce White has done in England or Kauffmann in Germany. Perhaps the most valuable part of the work is the description of several clinical cases observed in a Paris hospital in which S. hirschfeldi ("para C") was isolated.

The Modern Therapeutics of Internal Diseases: An Introduction to Medical Practice. By A. P. Cawadias, O.B.E., M.D., M.R.C.P. Cloth. Price, $3.75. Pp. 147. New York: William Wood & Company, 1931.

The author believes that we are emerging from an age of therapeutic nihilism and of the apotheosis of bacteriology, pathology and diagnosis that characterized the school of medicine of the nineteenth century, which was largely a meditation on death, into an age characterized by an active healing art. As Albert Robin says: "Scepticism regarding treatment can no longer be considered as a sign of high critical intelligence, but of deep medical ignorance." The essential feature of contemporary medicine is the synthetic movement, which considers and treats the patient as a whole rather than a single organ or disease. The statement "there are no diseases but only diseased individuals" or "every diseased individual represents a chain of morbid events" is merely another way of emphasizing the maxim that it is the patient, not the disease, that is the proper object of treatment. The author does not recognize a separation between diagnosis and therapy. Both are essential parts of treatment; for not only must diagnosis precede therapy but it must constantly accompany it to determine what effect the therapy had and what should be done next. Diagnosis is merely the first phase of treatment, and therapy the second phase. "As the true diagnosis of every morbid condition in internal medicine is bound to discover an extremely complicated process, so the therapy cannot be single or simple but must be a constellation of therapeutic factors, in which, according to their particular indications, psychic, dietetic, chemic, biologic and physical agents may take part, a constellation that varies for each patient and for the same patient according to changes in his condition." Enough, it seems, has been quoted here to show that this book

Medicolegal

Homeopathic Vaccination and School Attendance

(Allen et al. v. Ingalls et al. (Ark.), 33 S. W. (2d) 1099)

The school board of Eureka Springs special school district, under authority conferred on it by statute, made a rule requiring as a prerequisite to school attendance the presentation of satisfactory evidence of having been successfully vaccinated, or of having had smallpox, or of immunity to it, or of physical disability sufficient to excuse from compliance with the rule. The state board of health had defined "vaccination" as "the introduction, by scarification, of the bovine vaccine virus through the skin." Two children of one of the petitioners presented to the school board a certificate from a homeopathic physician, averring that he had vaccinated them against smallpox. This certificate the school board refused to accept. It permitted other children, however, to attend school without restriction on the presentation of certificates of vaccination issued by other physicians. Certain persons, including the parents of the two excluded children, thereupon instituted mandamus proceedings to compel the admission of these children and of five or six others who had been excluded. The homeopathic physician whose certificate had been rejected sought and obtained permission to intervene in the suit. The circuit court refused to issue the writ, and thereupon the petitioners appealed to the Supreme Court of Arkansas. The Supreme Court affirmed the judgment of the circuit court in favor of the school board.

The homeopathic physician whose certificate of vaccination the school board rejected testified that he had issued the certificate on the day on which he "gave the medicine and performed the vaccination." He described the method used by him, sometimes known as the homeopathic method, which the school board had refused to accept on the ground that it did not meet the requirements of the law and the rules of the state board of health. The homeopathic physician complained that the action of the school board was arbitrary and unwarranted, an attempt to regulate the practice of medicine, an interference with the right of citizens to employ practitioners of their choice, and contrary to the provisions of the statute under which the state board of health made its rules. The petitioners insisted that the state board of health exceeded its power in requiring vaccination and prescribing the method in which it should be performed; that the certificate of the physician that the children had been vaccinated was conclusive so far as the school board was concerned; that the vaccination requirement of the school board was arbitrary, unreasonable and unnecessary, and since it applied only to school children was discriminatory and void, and that it was in effect an unwarranted attempt to regulate the practice of medicine, and contrary to the provisions of the statute authorizing the making of health regulations by the state board of health.

It is well settled, said the Supreme Court, that it is a valid exercise of the police power of the state of Arkansas to authorize local boards of health to require under penalty the vaccination of all citizens when it is deemed necessary for the public health and safety, such necessity arising when smallpox is present in a community or its appearance reasonably apprehended. There was no smallpox in Eureka Springs nor in the county when the appellants' children were denied the right to attend the public schools, which they were entitled to do except for their failure to present satisfactory certificates of vaccination. The testimony showed furthermore that there was no condition existing at the time from which the appearance of smallpox could be reasonably apprehended. The present case, however, said the court, was not distinguished from *Brazil* v. *State*, 134 Ark. 420, 204 S. W. 622, 625, where a like condition was shown to exist and the adoption and promulgation of a rule like the one under consideration in the present case was held to be neither unreasonable nor unnecessary.

It is true, said the court, that there is no definition of the term "vaccination" in the statute granting authority to the state board of health, although there is no doubt that the legislature had authority to prescribe the method to be used by the state board in the protection of the public health when necessity arose. The majority of the court was of the opinion that the power to prescribe the method to be used for vaccination against smallpox was granted by implication by the statute granting powers and prescribing the duties of the state board of health and that the regulation made by the board prescribing the method for vaccination was not arbitrary but only a reasonable exercise of the power thus granted. The prescribed method of vaccination was in any event but a statement of the meaning of the term "vaccination" in accordance with the common knowledge of mankind and as understood by the consensus of opinion of the medical profession and practiced by a great majority of it. The term "vaccination" itself means the method of vaccination as it was defined by the state board of health, as effectually as if it had been so defined by the statute.

The majority of the court was moreover of the opinion that the school board did not abuse its discretion in requiring as a prerequisite to the entry of pupils into the public schools, the presentation of a certificate from a licensed and competent physician of the state that the pupil had been successfully vaccinated in accordance with the rules prescribed by the state board of health, and that the school board was not concluded by the certificates of vaccination presented by the pupils from licensed physicians but could inquire into the method used in performing vaccinations and deny children the right to enter school if vaccination had not been performed by the method prescribed by the state board of health.

Insanity: Insanity of Near Relatives as Evidence of.—In an effort to show the lack of testamentary capacity in the testator, the plaintiffs in error offered to prove that his brother had been adjudged of unsound mind and had died in an insane asylum. The defendant objected on the ground that it was immaterial and that no proper basis had been laid for such evidence, because it had not been shown that the insanity from which the brother suffered was of an hereditary nature. These objections were sustained by the trial court, and the proffered evidence excluded. The commission of appeals of Texas, section B, found that the excluded evidence was material to the issue as to the testator's sanity and should have been admitted. While the insanity of immediate relatives of a person does not prove that he is insane, yet it is corroborative of independent testimony to that effect and should always be received to be considered for such purpose. This finding of the commission of appeals was approved by the Supreme Court of Texas.—*Ramon v. Worsham (Texas), 35 S. W. (2d) 699.*

Workmen's Compensation Acts: Trauma and Disease of the Kidneys.—The plaintiff suffered from a disease of the kidneys. The evidence showed that that disease might result from causes other than trauma. The evidence conclusively established, however, that prior to the accident complained of the plaintiff was in good health and able to work and that immediately thereafter he was unable to work and that his disability had continued. Physicians testified that the fall sustained by the plaintiff was sufficient to injure his kidneys. The court was of the opinion, in the absence of any proof of an intervening cause, that the accident was the proximate cause of the plaintiff's disability.—*Gough v. Urania Lumber Co., Ltd. (La.), 132 So. 393.*

Society Proceedings

COMING MEETINGS

Association of American Medical Colleges, New Orleans, November 30-December 2. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, *Secretary*

Association of Military Surgeons of the United States, New Orleans, November 30-December 2. Dr. J. R. Kean, Army Medical Museum, Washington, D. C., Secretary.

Philippine Islands Medical Association, Manila, December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Radiological Society of North America, St. Louis, November 30-December 4. Dr. I. S. Trostler, 25 East Washington Street, Chicago, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., December 8-11. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

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Address of the President: Study in Records. A. Primrose, Toronto.—p. 481.

Reconstructive Operations for Jejunal Ulcer. D. C. Balfour, Rochester, Minn.—p. 489.

*Calcium Carbonate Gallstones and Calcification of Gallbladder Following Cystic Duct Obstruction. D. B. Phemister, A. G. Rewbridge and H. Rudisill, Jr., Chicago.—p. 493.

Gastric Ulcers Dependent on Diaphragmatic Hernia. F. S. Mathews and W. MacFee, New York.—p. 517.

Tumors of Diaphragm. H. Binney, Boston.—p. 524.

Symptoms and Physical Signs Indicating Hernia of Diaphragm with Report of Twelve Cases Treated by Operation. P. E. Truesdale, Fall River, Mass.—p. 528.

*Present Status of Treatment of Tuberculosis of Cervical Lymph Nodes. T. H. Miller, Boston.—p. 539.

Paracelsus. F. B. Lund, Boston.—p. 548.

Case of Thyroiditis Simplex (Reidel's Tumor). H. A. Bruce, Toronto.—p. 562.

Thyroid Surgery at Portland Clinic. T. M. Joyce, Portland.—p. 563.

End-Results of Thyroidectomy. F. A. Coller and E. B. Potter, Ann Arbor, Mich.—p. 568.

Progressive Exophthalmos Following Thyroidectomy: Pathology and Treatment. H. C. Naffziger, San Francisco.—p. 582.

Electrosurgery with Especial Reference to Goiter and Malignancy. M. B. Tinker, Ithaca, N. Y.—p. 587.

Parathyroidism and Parathyroidectomy. M. Ballin and P. F. Morse, Detroit.—p. 592.

Resection of Cecum. F. N. G. Starr, Toronto.—p. 610.

Surgical Treatment of Tuberculoma of Cecum. H. H. Kerr, Washington, D. C.—p. 612.

Diverticulitis of Colon: Report of Thirty-Six Cases from New York Hospital: F. Conway and J. M. Hitzrot, New York.—p. 614.

Bacteriophage in Surgery of Colon and Rectum. E. Rixford, San Francisco.—p. 640.

*Diverticulitis and Sigmoiditis. C. Eggers, New York.—p. 648.

Treatment of Megacolon by Sympathectomy. D. E. Robertson, Toronto.—p. 670.

*Total Colectomy: Its Indication and Technic. F. W. Rankin, Rochester, Minn.—p. 677.

Choice of Operation in Carcinoma of Colon. D. Cheever, Boston.—p. 705.

Intestinal Obstruction from Carcinoma of Colon. W. D. Haggard, Nashville, Tenn.—p. 717.

Surgery of Large Intestine. W. J. Mayo, Rochester, Minn.—p. 722.

*Action of Sodium Chloride on Small Intestine. T. G. Orr, Kansas City, Kan.—p. 732.

Spinal Anesthesia. G. P. Muller and R. H. Overholt, Philadelphia.—p. 738.

Clinical Experiences with Gwathmey's Colonic Oil-Ether Anesthesia. H. H. M. Lyle, J. T. Gwathmey and L. Watter, New York.—p. 751.

*Results of Splenectomy in Splenic Anemia, Hemolytic Jaundice, and Hemorrhagic Purpura. J. deJ. Pemberton, Rochester, Minn.—p. 755.

Abscess of Liver. F. K. Boland, Atlanta, Ga.—p. 766.

*Selective Surgical Treatment of Diaphragmatic Hernia. C. A. Hedblom, Chicago.—p. 776.

Late Results of Surgical and Medical Treatment of Chronic Cholecystitis. J. T. Mason, Seattle.—p. 786.

Tuberculosis of Esophagus: Report of Case Without Active Tuberculosis Elsewhere. F. Torek New York.—p. 794.

Calcium Carbonate Gallstones.—According to Phemister and his associates, obstruction of the cystic duct or neck of the gallbladder by one of the common gallstones or by a carcinoma may be followed by the precipitation within the gallbladder of large amounts of calcium carbonate in the form of a soft, white stone, a paste or a milky suspension (lime-water bile). Obstruction, although it may be incomplete or intermittent, appears to be necessary for the occurrence of the process. The calcium carbonate is thrown out in the presence of a mild chronic cholecystitis rather than a severe acute cholecystitis, and it appears to come from the wall of the gallbladder. There may also be deposition of calcium carbonate on the stone in the cystic duct and particularly on its gallbladder side making it possible to diagnose both the calcium carbonate deposit in the gallbladder and the duct obstruction by means of roentgenograms. Obstruction of the cystic duct by one of the ordinary gallstones may in other cases be followed by degeneration, fibrosis and calcification of the wall of the gallbladder. In such cases there is also calcification of the cystic duct about the stone with fusion of the surfaces of stone and duct. If the gallbladder is contracted on a mass of stones there may be calcification with cementing of the stones to the wall of the gallbladder and to a less extent to one another. When the gallbladder is found calcified in the absence of a stone in the cystic duct, the duct is found obliterated by fibrous tissue at its cystic end. It should be remembered that while these two pathologic processes are closely related they are in reality separate biochemical changes. The calcium carbonate deposition in the lumen belongs in the realm of stone formation, while the calcium phosphate-calcium carbonate deposition in the gallbladder wall belongs in the realm of tissue calcification.

Tuberculosis of Cervical Lymph Nodes.—Miller calls attention to the fact that lymphatic tuberculosis in the neck is slowly disappearing as a result of proper elimination of infected cows, proper pasteurization of milk, and the widespread and increasing custom of removing children's tonsils and adenoids. These measures are of untold prophylactic value. Cervical tuberculosis is, in many instances, a primary focus of disease, a focus from which bacilli may be, and soon are, carried into the general circulation. Cervical nodes furnish one of the few instances in which the primary focus of tuberculosis can early be seen, felt and extirpated, without damage to the patient. The author believes that when these nodes are discrete, when the technical difficulties of operation are not insuperable, and when there is no active pulmonary or general disease, radical excision should be given serious consideration as the treatment of choice.

Diverticulitis and Sigmoiditis.—On the basis of a group study of acute sigmoiditis and diverticulitis, Eggers calls attention to the seriousness of this condition. The study reveals that diverticulosis, as such, is not an innocuous lesion. Once recognized in a patient, the physician or surgeon assumes a serious responsibility if he allows the patient to depart without warning him of possible danger and instructing him in the available means to avoid complications. It is difficult to imagine a group of patients that tax a surgeon's judgment, ability and patience to a greater degree than complicated cases of diverticulitis.

Total Colectomy.—Rankin stresses the advantages of graded removal of the large bowel and rectum when its extirpation is necessary, and emphasizes the thought that polypoidosis, and particularly the congenital variety, is a potentially malignant condition which warrants radical measures before metamorphosis into carcinoma has taken place. As for the other indication for resection, complicated chronic ulcerative colitis, it is evident that the question of focal infection must be a very urgent one before such radical surgical measures can be undertaken, but here, too, polypoidosis or pseudopolypoidosis, whichever one chooses to regard it, unquestionably is a forerunner of a malignant condition in certain cases.

Sodium Chloride and Small Intestine.—Orr describes experimental studies and clinical observations which indicate that sodium chloride in hypertonic solutions increases the tone of the small intestine and stimulates peristalsis. The intravenous administration of hypertonic solution of sodium chloride as a peristaltic stimulant is indicated in postoperative distention with "gas pains," paralytic ileus, and as an adjunct to the treatment of intestinal obstruction after the obstruction has been relieved either by direct attack or by enterostomy. The administration of sodium chloride solution in proper concentration is considered a specific treatment for the dehydration and hypochloremia incident to the various types of ileus.

Results of Splenectomy.—Pemberton presents data from which it is evident that, contrary to the prevalent view of the hazardous nature of splenectomy, the operative results (6.7 per cent) compare favorably with those of other major abdominal operations, and in spite of the relatively common mistakes made in diagnosis, the conditions associated with disorders of the spleen and amenable to splenectomy can readily be identified, provided complete data concerning the blood are correlated with the clinical history. Since the operative results in cases of splenic anemia are largely contingent on the presence of secondary disorders of the liver and portal obstruction, the need for early diagnosis and operation is apparent. Enlarged spleens, in the absence of definite etiology, should be considered as instances of the splenomegaly of potential splenic anemia, and operation should be advised. However, clinical evidence of the presence of hepatic injury should not in itself be considered a contraindication to splenectomy, since many patients in this group live active lives for many years after removal of the spleen. The relative frequency of recurrent hemorrhages in these cases indicates the need for additional effort toward their prevention, such as ligation of the coronary vein and omentopexy. In view of the high percentage of secondary disease of the liver, the small operative hazard, and the extremely favorpelvirectal abscess as a secondary complication. The nature of the inflammatory lesion in the posterior periprostatic space may vary from a diffuse cellulitis to frank abscess formation. Suppurations here are of frequent occurrence before or after operation, owing to the tendency of the suppurations of the prostate and seminal vesicles to spread posteriorly into the posterior space and thence pierce the fascia of Denonvillier to reach the prerectal space. Retroprostatic and retrovesical suppurations naturally tend to open into the rectum and effect a clinical cure, but in some instances the drainage through the rectum is insufficient and the suppuration extends along and around the rectum to point as an ischiorectal abscess or to spread upward under the peritoneum, forming a retroperitoneal suppuration.

New England Journal of Medicine, Boston

205: 703-746 (Oct. 8) 1931

Fracture Exhibit at One Hundred and Fifteenth Annual Meeting. C. L. Scudder, T. W. Harmer and A. Thorndike, Jr., Boston.—p. 703.
*Treatment of Exstrophy of Bladder by Ureteral Transplantation. H. Cabot, Rochester, Minn.—p. 706.
Medical Progress: Progress in Anesthesia in 1930. P. D. Woodbridge, Boston.—p. 712.

Treatment of Exstrophy of Bladder.—In Cabot's experience the principle enunciated by Coffey of ureteral transplantation to the large intestine in exstrophy of the bladder has been more satisfactory than any method previously employed. For patients with exstrophy of the bladder or epispadias in which other operations have failed, the three-stage method of operation gives a low mortality and satisfactory results. The author submits evidence to support the view that this method gives better results than previous methods of transplantation.

New Jersey Medical Society Journal, Orange

28: 731-794 (Oct.) 1931

Historical Sketch of Development of Preventive Medicine in State of New Jersey. J. B. Morrison, Newark.—p. 731.
Practitioner's View of Medical Economics. F. I. Krauss, Chatham.—p. 743.
Moses Maimonides—Physician and Philosopher. S. Schiffmann, Newark.—p. 750.
Constipation. H. S. Read, Atlantic City.—p. 755.
Bacterial Heart Failure. F. C. Weber, Newark.—p. 760.
Relation of Arteriosclerosis to Cardiac Pathology. J. Polevski, Newark.—p. 762.
The Female Sex Hormone. Rita S. Finkler, Newark.—p. 766.
Practical Gastro-Enterology. J. Gerendasy, Elizabeth.—p. 768.
Tonsillectomy by Diathermy. A. S. V. Giglio, Elizabeth.—p. 771.
Prevention and Control of Lead Poisoning in Industry. J. S. Mark, Carteret.—p. 773.

New Orleans Medical and Surgical Journal

84: 227-310 (Oct.) 1931

State Medicine: Annual Oration. J. B. Bullitt, Chapel Hill, N. C.—p. 227.
Radiology as Specialty of Medicine. G. P. Sims, Gulfport, Miss.—p. 234.
Memorial Service. O. W. Bethea, New Orleans.—p. 235.
*Use of "Avertin" as Basal Anesthetic. I. M. Gage and A. Ochsner, New Orleans.—p. 239.
The Mariahuana Menace. A. E. Fossier, New Orleans.—p. 247.
Carcinoma of the Lip: Radium Treatment. M. T. Van Studdiford, New Orleans.—p. 252.
Bacteriology and Pathology of Undulant Fever. L. A. Hebert, Lake Charles, La.—p. 259.
Modern Methods of Treatment of Meningomyelo-Encephalitis (Infantile Paralysis). R. G. Douglas, Shreveport, La.—p. 262.
Sinus Diseases and Their Relation to Eye Disturbances: Medical Treatment of Sinus Diseases Complicated by Eye Disturbances. J. C. Adams, Greenwood, Miss.—p. 269.
Surgical Treatment of Sinus Diseases Complicated by Eye Disturbances. Fern Champenois, Hattiesburg, Miss.—p. 272.
Eye Symptoms and Changes Resulting from Sinus Disease and Treatment of Same. C. C. Buchanan, Hattiesburg, Miss.—p. 275.

Use of "Avertin" as Basal Anesthetic.—Gage and Ochsner report fifty-three cases in which they have used "avertin" as a basal anesthetic. Of this number fifteen of the patients had complete anesthesia. Thirty-eight required supplementary anesthesia. Ether was always used as the reenforcing agent. The average blood pressure decrease was 17.5 mm. of mercury. The average time interval for postoperative recovery from the effects of "avertin" was two hours. The type of the operations ranged from laminectomy to removal of an exostosis of the femur.

Physical Therapeutics, Elmira, N. Y.

49: 365-404 (Oct.) 1931

Medical Diathermy. B. B. Grover, Colorado Springs.—p. 365.
*Evolution of Electrosurgery. E. N. Kime, Indianapolis.—p. 367.
*Actinotherapy and the Public. E. L. Libbert, Lawrenceburg, Ind.—p. 380.

Evolution of Electrosurgery.—Kime emphasizes the fact that electrosurgery requires not only the ordinary operative skill and surgical judgment but also an intimate knowledge of the underlying physical principles involved. Not only is there absolute necessity for the provision of a suitable apparatus capable of delivering both damped and undamped oscillations in sufficient power and flexibility of control, but likewise these must be utilized in the proper manner at the time and place indicated by the variable factors involved as to anatomy, physiology and pathology. There is much needed work to be done in the standardization of nomenclature and technic as well as much in education of the profession to the importance of meticulous consideration of the why as well as the how in electrosurgical technic. Refinements in technic and anesthesia, as well as in control of operative, electrosurgical and radiologic procedures, are problems of the present and the future. Biopsy control of therapeutics is essential in the treatment of neoplasms and infective granulomas, but the biopsy should be performed by a safe electrosurgical technic and with common sense interpretation, not a small part of which is based on the clinical course of the disease.

Actinotherapy and the Public.—Libbert believes that the method of application and the dose of actinic radiation are of equal importance, and the pathologic condition for which it is employed should be as thoroughly understood as in the application of surgery or any other therapeutic agent. It cannot simply be turned on by inexperienced persons with the idea of producing uniformly good results in all conditions indicating its use by following the same technic in every case. The use of actinotherapy by the public is and should be on the increase, since it is an additional method of preventive medicine and as such ranks with certain other ill understood yet definite adjuncts to modern medicine. Both the medical and the lay public should be acquantited with the fact that, while this form of therapy is advantageous to the production and maintenance of good health, it is not without certain dangers, which can be understood only by properly educated and trained medical men.

Virginia Medical Monthly, Richmond

58: 423-494 (Oct.) 1931

*Gastroduodenal Hemorrhage. R. L. Payne and R. D. Jones, Jr., Norfolk.—p. 423.
Subjective Factor in Prognosis of Pulmonary Tuberculosis. B. M. Randolph, Charlottesville.—p. 427.
Discussion of Some Important Factors Concerning the Eighth Nerve. H. R. Slack, Jr., Baltimore.—p. 430.
"Avertin" Anesthesia in Otolaryngology. F. D. Woodward and C. T. Burton, University.—p. 431.
Study of Circulatory System of One Hundred and Fifty Adolescent Girls, Participants in or Candidates for Competitive Athletic Sports. C. B. Conklin, Washington, D. C.—p. 435.
Urinary Bilharziosis. T. V. Williamson, Norfolk.—p. 449.
Embolism of Abdominal Aorta: Case. C. H. Binford, Norfolk.—p. 454.
Addison's Disease in Negro: Case. R. L. King and H. B. Mulholland, University.—p. 455.
Tracheotomy: Observations of Nineteen Cases, Illustrated with Lantern Slides. E. G. Gill, Roanoke.—p. 457.
Fractures. M. H. Todd, Norfolk.—p. 460.
Premature Delivery and Death of Fetus in Several Consecutive Pregnancies in Same Woman: Case. J. M. Howe, Washington, D. C.—p. 463.
Gallbladder Drainage by Duodenal Intubation. V. S. Caviness, Raleigh, N. C.—p. 465.
Inversion of Uterus: Case. J. M. Whitfield, Richmond.—p. 467.
Aneurysm of Aorta. J. F. Elward, Washington, D. C.—p. 468
Vitamin B: Review. R. B. Hillsman, Richmond.—p. 470

Gastroduodenal Hemorrhage.—Payne and Jones believe that gastric or duodenal hemorrhage is seldom, except under rare conditions, an indication for immediate operation. There are a great variety of pathologic lesions, both intragastric and extragastric, which may be responsible for gastric or duodenal bleeding. Success in the management of these cases depends entirely on correct diagnosis and proper treatment of the disease responsible for hemorrhage. Roentgenologic examination, while necessary in a small percentage of cases, should be carried out

British Medical Journal, London

2: 687-732 (Oct. 17) 1931

*Observations on Resuscitation from Asphyxia and Prevention and Treatment of Secondary Pneumonia by Inhalation of CO_2. Y. Henderson.—p. 687.
Diabetes Insipidus Following Fractured Skull. A. Patrick.—p. 689.
Congenital Pyloric Stenosis. C. M. Page.—p. 691.
Premedication. S. Rowbotham.—p. 693.
Congenital Talipes Equinovarus. D. Browne.—p. 696.
Bacterial Endocarditis in Infant 13 Days Old. J. D'Ewart.—p. 699.
Rapid Laboratory Test for Pregnancy. Gladys H. Dodds.—p. 700.

Resuscitation from Asphyxia and Prevention of Secondary Pneumonia by Inhalation of Carbon Dioxide.—Henderson calls attention to the fact that in cases of drowning, asphyxiation and other accidents, and after surgical anesthesia, the prevention of secondary pneumonias is almost as important as the immediate resuscitation. Inhalation of carbon dioxide mixed with oxygen or with air is the most effective means of stimulating respiration. This inhalation has proved to be also a highly effective preventive, indeed, it is essentially the specific preventive, of the collapse of the lungs that leads to pneumonia. These two advantages have now been demonstrated by experience in large numbers of cases of carbon monoxide asphyxia, drowning and other accidents. In the asphyxia of the newborn this inhalation is replacing the old brutal and often ineffective methods of swinging, spanking and dipping. In surgical clinics this treatment is used to counteract failure of breathing under anesthesia, to restore a normal circulation, and especially to prevent postoperative pneumonia. Respiration is closely associated with the tonus of the muscles, especially of the thorax. Depressed breathing and low tonus permit collapse of parts or the whole of a lung. From this collapse, if infection is present, pneumonia develops. If respiration and muscle tonus are stimulated by inhalation of carbon dioxide, the lungs are kept open and the development of pneumonia is prevented.

Lancet, London

***2:** 779-832 (Oct. 10) 1931*

Innervation of Blood Vessels of the Limbs. J. S. B. Stopford.—p. 779.
*Blue Sclerotics and Associated Defects: Study of Four Families with Notes on Their Mineral Metabolism. G. H. Stevenson and D. P. Cuthbertson.—p. 782.
Physical Treatment of Prostatic Lesions. E. C. Titus and V. C. Pedersen.—p. 788.
*Injection of Highly Purified Liver Preparations in Pernicious Anemia. J. F. Wilkinson.—p. 791.

Blue Sclerotics and Associated Defects.—Stevenson and Cuthbertson give pedigree tables of four families one or more of whose members have suffered from one or more of the associated defects of bone fragility, blue sclerotics, otosclerosis, and liability to dislocations and sprains. Metabolic studies revealed definitely diminished retentions of calcium, phosphorus and magnesium in two children affected with the associated defects of bone fragility, blue sclerotics and hypotonicity of ligaments. There did not appear to be any marked deviation of these minerals from the normal excretory paths in these children and in two adults studied. The concentration of calcium and phosphorus in the blood was normal. Viosterol and cod liver oil did not appear to have any specific effect in these abnormalities.

Liver Treatment of Pernicious Anemia.—Wilkinson describes a method of treatment for the severest cases and also refractory cases of pernicious anemia. This involves the use of a highly purified and extremely potent preparation from liver extract; it is practically free from protein and does not affect the blood pressure when injected intravenously or intramuscularly. Both routes are efficient, rapid and painless, but the intravenous method is slightly quicker in its results. The method is intended to supplement the ordinary oral therapy during the critical stages of the disease, but it can be used as the sole treatment, intramuscular injections being readily given at regular intervals according to the needs of the patient.

South Africa M. Assn. Journal, Cape Town

5: 585-616 (Sept. 26) 1931

Plea for State Medicine. F. H. Napier.—p. 587.
Pathology and Treatment of Colles' Fracture. M. C. Rous.—p. 593.
Scurvy in Native Children. Shena Ross.—p. 596.

Journal de Radiologie et d'Electrologie, Paris

15: 473-536 (Sept.) 1931

Roentgenography of Urethra and Prostate. R. Ledoux-Lebard, J. Garcia-Calderon and J. Petetin.—p. 473.
Conductivity of Skin of Frog Under Passage of Alternating Current. A. Strohl and J. Dubost.—p. 491.
*Functional Neuroglandular Roentgen Therapy: Suprarenal Region. R. Desplats.—p. 502.
Polyroentgen Therapy in Localized Decalcifications. G. Chaumet.—p. 510.
Cerebral Pneumoventriculography. J. Jouret.—p. 516.

Functional Neuroglandular Roentgen Therapy: Suprarenal Region.—Desplats asserts that irradiation of the suprarenals has many applications in functional neuroglandular therapy. He reports his results in the treatment of syndromes in arterial obliteration of the limbs, painful arterial syndromes as in trophic disturbances and the gangrenes that accompany them, certain vasomotor disturbances, forms of functional diabetes, instances of painful bone absorption, physiopathies accompanying certain traumatisms, and chronic rheumatism. Suprarenal roentgen therapy is efficacious in pathologic states formerly considered purely neuropathic but, according to the author, now considered as states due to disequilibrium in the neuro-endocrine system.

Presse Médicale, Paris

39: 1461-1476 (Oct. 7) 1931

*Indications for Pneumonotomy and Pneumectomy in Pulmonary Abscess. E. Sergent, A. Baumgartner and R. Kourilsky.—p. 1461.
Granular Tuberculosis of Skin Originating in Blood and Tuberculids. P. Ravaut, J. Valtis and Guerra.—p. 1464.
Chrysotherapy in Tuberculosis. L. Bernard, C. Mayer and Sakellaropoulos.—p. 1469.
Nephropyelography: Intravenous Injection of Skiodan. H. Wohlers and S. Kadrnka.—p. 1473.

Indications for Pneumonotomy and Pneumectomy.—Sergent and his co-workers outlined in 1929 the principles underlying the treatment of suppurations of the lungs. Treatment should depend on the seat of the infection, whether superficial or deep, and the anatomopathologic and bacteriologic character determining the acute or chronic evolution of the abscess. The interventions suggested were simple pneumonotomy which is equivalent to transthoracic drainage of the abscess, and partial pneumectomy, which is really the exeresis or destruction of the source of suppuration. Two representative cases are described in detail and the following suggestions are made: If the abscess is quite recent and the ambient bronchopneumonic processes have not taken on an infective, necrotic evolution, transthoracic drainage or simple pneumonotomy is sufficient. When there is a tendency toward a chronic state, spontaneous drainage through vomicae or bronchoscopic aspiration is insufficient, while pneumonotomy assures drainage and permits curettage of the cavity, drainage and formation of cicatrices. If the abscess is already old, if the ambient bronchopneumonic processes have assumed an infective, putrid, necrotic evolution, pneumonotomy will not do; it may be followed by deceptive abatement, of more or less short duration, but not by cure. Destruction of the tissue has begun and only partial pneumectomy and exeresis of the seat of infection can be effective. Too much caution in the latter case is not advantageous. The authors recall that putrid abscesses may have bacteriologic differences, some developing rapidly, while others may seem stationary, spreading little in spite of great age. Greater cooperation between the clinician and the surgeon is recommended.

39: 1493-1516 (Oct. 14) 1931

*Direct Culture in Tuberculous Effusions of Pleura. F. Bezançon and E. Buc.—p. 1493.
Digestive Bead Test in Medical Practice. M. Einhorn.—p. 1494.
Studies on Testicular Grafts. H. Velu.—p. 1496.

Direct Culture in Tuberculous Effusions of Pleura.—Bezançon and Buc enumerate the difficulties in the microscopic examination of tuberculous smears, especially in the acute period when the clear serofibrinous or serous exudate of pleurisy or artificial pneumothorax shows but few bacilli. Guinea-pig inoculation was thought more preferable but there also the results were variable and often belated. The authors review the literature dealing with the direct culture of tuberculous exudates and describe their own experiences. They adopted plexus) and to the head, through the carotid nerve. In this third case, the author omitted the decortication of the carotid bulb performed in the second case, as it gave the patient little additional relief. All the refinements that the author has introduced were for the purpose of intercepting the sensory fibers that conduct the violent pain sensations of an attack of angina pectoris from the cardio-aortic system to the centers of consciousness.

Deutsche Zeitschrift für Nervenheilkunde, Berlin

122: 117-208 (Sept. 4) 1931

*Funicular Myelosis in Hemolytic Icterus. H. Curschmann.—p. 119.
Occurrence of Iso-Agglutinins in Cerebrospinal Fluid. A. Kral.—p. 126.
Various Reactions During Irritation of Sole of Foot. H. J. Katzenstein.—p. 137.
Syndrome of Friedreich's Ataxia Following Epidemic Encephalitis. F. Salus.—p. 179.
Encephalomyelitis Disseminata. A. Mandl and F. Puntigam.—p. 183.
Progressive Muscular Atrophy (Chronic Polyneuritis?) in Gout. W. Mackh.—p. 202.

Funicular Myelosis in Hemolytic Icterus.—Curschmann reports a typical case of acquired hemolytic icterus in which a spinal syndrome developed, which in all its phases resembled the funicular myelosis that frequently occurs in pernicious anemia. There were tabetiform symptoms with ataxia, positive Romberg sign, extended paresthesia, hyperesthetic zones, hypesthesia and areflexia. Syphilitic symptoms were entirely absent in the blood as well as in the spinal fluid, and the intactness of the pupils and of the cerebral nerves also corresponded to the funicular myelosis of pernicious anemia. The spinal syndrome developed gradually and several years after the onset of the icterus. The author considers this case interesting because in other reports on hemolytic icterus spinal complications are not mentioned. More especially, this seems to be the only case of acquired hemolytic icterus, although previously the author had observed cases of familial hemolytic icterus with severe spinal paralysis. He reaches the conclusion that in the familial cases of hemolytic icterus as well as in the acquired case the spinal disturbances were a partial manifestation of the hemolytic icterus, just like funicular myelosis in pernicious anemia, and he advises that in both forms of hemolytic icterus the patients should be examined for spinal symptoms.

Jahrbuch für Kinderheilkunde, Berlin

133: 1-128 (Sept.) 1931

Treatment of Hemorrhagic Diseases. K. Klinke.—p. 1.
*Congenital, So-Called Cerebral Form of Adiposogenital Dystrophy. H. Willi.—p. 12.
Significance of Orthodiagraphy for Estimation of Size of Heart During Childhood: Constitution of Children with Circulatory Diseases. A. F. Hecht.—p. 26.
*Chemistry and Immunobiology of Scarlet Fever Blanching Phenomenon. J. Berendes.—p. 74.
Rôle of Hemato-Encephalitic Barrier in Genesis of Neurotoxic Syndrome During Acute Nutritional Disturbances. S. J. Schaferstein.—p. 94.
Rudimentary Neuropsychic Functions in Nurslings. J. S. Galant.—p. 104.
Harmlessness and Efficacy of Calmette Vaccination. Helene Eliasberg.—p. 109.

Adiposogenital Dystrophy.—Willi observed adiposogenital dystrophy, syndactylism and severe visual disturbances in two children whose parents were first cousins. A review of the literature convinced him that one third of the patients with this syndrome descend from consanguine parents. In the ascendencies of other patients there occurred nervous disturbances, alcoholism, adiposity and polydactylism. Adiposity is the symptom that is most noticeable in these patients, but whether it is the most important one cannot be decided. Although the adiposity is generalized, it is especially noticeable on the abdomen, mammae, hips, thighs and the upper portion of the arms. These sites of predilection indicate the hypophyseal type. The genital hypoplasia is not always present, but malformations of the hands or feet and visual disturbances are found regularly, and occasionally there are also cranial deformities. The intelligence is usually somewhat below the average, but sometimes it is fairly good. Usually there is a lack of interest and the patients are slow and calm. The metabolism is often considerably reduced. The pathogenesis of the syndrome is still unknown, but since the three symptoms of adiposity, syndactylism and visual disturbances concur, it may be assumed that the hereditary factors are coupled; that is, that they occur in the same chromosome.

Blanching Phenomenon in Scarlet Fever.—In analyzing the blanching phenomenon in scarlet fever, Berendes first studied the calcium blanching phenomenon and found it positive in 10 per cent of the cases. In order to detect the blanching principle in convalescent serum, the serum was subjected to various physical and chemical modifications. When it was diluted to as much as 1 to 80, it still had a blanching effect; however, if it was diluted more than that, it did not. Serum that was brought to a temperature of from 50 to 56 C. caused blanching, but if heated to 70 C. it did not. The effective component could not be removed from the serum by various inorganic and organic adsorption mediums, such as animal charcoal, silicic acid, kaolin and talc. Attempts were made to fractionate the serum protein by various alcohol precipitations, but the results were not convincing. Precipitation of the serum protein by means of acid and subsequent rediluting in alkali destroyed the blanching power. Fractionation experiments with ammonium sulphate revealed that the protein fractions, with the exception of albumin, had a blanching effect. Ultraviolet irradiation lasting from forty to sixty minutes did not destroy the blanching component. Moreover, the blanching power may even be retained after the convalescent serum has been exposed to the intense influence of pepsin ferment. Placental serum was found to have the same blanching effect as convalescent serum.

Wiener Klinische Wochenschrift, Vienna

44: 1125-1152 (Sept. 4) 1931

Surgical Treatment of Acute Profuse Gastric and Duodenal Hemorrhages. H. Finsterer.—p. 1125.
Use of "Avertin" and Prevention of Its Dangers. E. Domanig.—p. 1129.
*Neuroses and Psychoses in Menstrual Disturbances. B. Aschner.—p. 1132.
Distribution of Thorium in Organism Following Injection of Colloidal Solution of Thorium Dioxide. T. Leipert.—p. 1135.
Hitherto Unknown Disease Entity in Course of Catarrhal Inflammations of Respiratory Tract. R. E. Perl.—p. 1136.
Primary Carcinoma of Skin. H. Fuhs.—p. 1139.
Psychiatric and Neurologic Complications of Last Influenza Epidemic. O. Kauders.—p. 1144.
Necessary Considerations in Tooth Extraction. H. Wolf.—p. 1145.

Neuroses and Psychoses in Menstrual Disturbances.—Aschner points out that menstruation is an important excretory process, and that irregularities in this function may lead to serious disturbances. Even in women in whom menstruation is normal, the onset of the menses is often preceded by depression and abnormal irritability. In dysmenorrhea, the disturbances are sometimes so severe that they present the aspects of a serious intoxication with nausea, migraine, diarrhea, cutaneous eruptions, fever, chills and herpes. Nervous disturbances are especially marked in cases of hypomenorrhea (too rare and too scanty menstruation). The author discusses and illustrates with case reports the concurrence of hypomenorrhea with such conditions as nervous irritability, vasomotor neuroses, insomnia, sleepiness, anxiety, hysterical conditions, mania, hypomania, periodic mania, paranoia, depression and melancholia. In many such cases, in which all other therapeutic measures had failed, he obtained favorable results by increasing the menstruation by means of emmenagogues. Laxatives, sweating cures and venesection were likewise found helpful in many cases.

Zentralblatt für Chirurgie, Leipzig

58: 2433-2496 (Sept. 26) 1931

*Ascaris Lumbricoides Perforating Through Intestinal and Abdominal Walls After Resection of Stomach. E. Schmutzler.—p. 2435.
Traumatic Origin of Thrombophlebitis. H. Dewes.—p. 2436.
Malignant Gastric Polyposis. A. Pop and Onaca N.—p. 2440.
*Intravenous Injection of Morphine as Diagnostic Aid for Localization of Abdominal Disorder. A. Hildebrandt.—p. 2442.
Technic of Microscopic Examination of Vermiform Appendix. I. I. Genkin.—p. 2443.
Simple Forceps for Tying Wires in Synthesis of Fractured Bones. A. Hildebrandt.—p. 2445.

Ascaris Lumbricoides Perforating Through Abdominal Wall After Resection of Stomach.—Schmutzler reports the case of a woman, aged 55. The anamnesis and the clinical examination indicated a gastric ulcer, and roentgenoscopy corroborated this in revealing an ulcer with niche formation on

Conservation of Complement for Wassermann Reaction.—Shirvindt and Liberman discuss the various methods for the conservation of complement proposed in the past. The results of methods that included freezing, desiccation, addition of sodium chlorate, sodium citrate, magnesium sulphate and other substances were not entirely satisfactory. The authors incorporated the methods proposed by Ginsburg and Kalinina and by Sonnenschein in 1929. According to one method, 10 per cent crystalline sodium chlorate and 4 per cent crystalline boric acid were added to fresh complement and the serum was stored at room temperature; according to the other method, 10 per cent crystalline sodium acetate and 4 per cent crystalline boric acid were added and the serum was stored at icebox (5 C.) temperature. Twenty-nine samples of complement were conserved by using the first method. One serum was active after eight months' storage, two after six months', the rest after intervals of from thirty to ninety days. Ten more samples of complement were still active after three and one-half months with no change in titer or scarcely any. Three samples of complement were stored, the two methods of conservation being used in parallel, and at the time of the publication of the paper (five and one-half months after collection of the serums) the authors report that the serums are still complementary with but little change in titer from the time of the first collection. The author asserts that boric acid prevents bacterial contamination; and sodium chlorate helps to keep intact the colloid state of the serum. The two methods of conservation seemed equally effective.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 4643-4750 (Sept. 12) 1931

Diaphragmatic Hernia of the Hiatus Oesophageus. S. Keijser.—p. 4644.
*Myxedema, Fugitive Edemas, Cachexia Strumipriva and Epilepsy. G. C. Bolten.—p. 4650.
Thrombosis and Infection. P. H. Kramer.—p. 4663.

Myxedema, Fugitive Edemas, Cachexia Strumipriva and Epilepsy.—Bolten points out that, associated with myxedema and fugitive edemas, epileptic attacks are occasionally observed. In animals, following complete thyroparathyroidectomy, attacks of epilepsy and tetany develop almost without exception. In man these manifestations have likewise been repeatedly observed after thyroidectomy. These facts lead the author to assume that also in cases of so-called genuine epilepsy, in the sense that Binswanger uses the term, a thyroid or a pluriglandular insufficiency is to be regarded as the cause.

Finska Läkaresällskapets Handlingar, Helsingfors

73: 593-680 (Aug.) 1931

*Sterility in Women: Its Causes and Treatment. E. A. Björkenheim. —p. 593.

Sterility in Women.—Björkenheim's 524 cases (424 primary, 100 secondary) include only cases of sterility after at least three years of marriage. In at least 10 per cent of the cases, childlessness was due to the husband. The most common cause of sterility in the wife was inflammatory changes in the adnexa and parametrium (about 35 per cent). The total number of patients treated was 417, of which 69 required interventions which made conception impossible. Of the remaining 348 cases there was information as to the results following treatment in 213: conception occurred sooner or later after the start of treatment in 56 (16 per cent) of the 348 cases.

Hygiea, Stockholm

93: 577-624 (Aug. 15) 1931.

*Endemic Goiter in Sweden. J. A. Höjer.—p. 577.
Critical Considerations Regarding Question of Daily Variations of Urobilinuria. E. Forsgren.—p. 602.

Endemic Goiter in Sweden.—Höjer concludes that there is usually a definite relation between topography and simple goiter. Most of the goiter regions in Sweden are found on or below slopes, the incidence of goiter depending on the degree and the length of the slope and the width of the ridge, and on the presence of watercourses. Goiter is frequent in localities lying below mountain masses, mountain ridges, in deep valleys, less frequent below conical mountains and more frequent in the lower part of deep narrow valleys.

Ugeskrift for Læger, Copenhagen

93: 867-886 (Aug. 27) 1931

*Treatment of Bronchopneumonia in Children. E. Lenstrup.—p. 867.

Treatment of Bronchopneumonia in Children.—Lenstrup states that in 261 cases of bronchopneumonia, representing all degrees, in which the patients were treated in the Queen Louise Children's Hospital from 1919 to 1929, the total mortality was 14 per cent. The mortality in the first year of life was almost 20 per cent and in the second year it was 8 per cent. The therapy was conservative, the main feature being rest. In cases in infants the steam tent was used extensively and in cases with cyanosis oxygen was administered, always with the steam tent. Medicamental treatment was limited.

Upsala Läkareförenings Förhandlingar, Uppsala

36: 297-438 (Aug. 15) 1931

*Case of Gas Abscess in Pancreas. C. G. Sundberg.—p. 297.
*Displaceability of Pleural Exudates and Method of Roentgenologic Demonstration of Minimal Shifting Exudates. R. Hjelm and H. Laurell.—p. 305.
What Factors Determine Speed of Rise of Pressure in Artificial Venous Stasis? C. Grill.—p. 313.
*Surgical Treatment of Habitual Luxation of Shoulder Joint. S. Ribbing. —p. 321.
Method for Determination of Dosage of Small Quantities of Iron in Organic Substances. A. Wallgren.—p. 329.
*Case of Papilloma on Valve of Heart. A. L. Haglund.—p. 339.
*Specific Infectious Rheumatism: Pathogenesis and Pathologico-Anatomic Differential Diagnosis. S. Gräff.—p. 349.
Question of Airing Hospitals. C. Naeslund.—p. 375.
Vitamin C Content of Bananas and Question of Determining Smallest Antiscorbutic Protective Dose. C. Naeslund.—p. 397.
Formation of Vitamin C with Especial Regard to Significance of Sunlight. C. Naeslund.—p. 411.
Ability of Man to Utilize Vitamin C in Raw and Cooked Vegetables. C. Naeslund.—p. 425.

Case of Gas Abscess in Pancreas.—In Sundberg's case the diagnosis of pancreatic abscess, based mainly on the results of roentgen examination, was verified at operation. The formation of the so-called pancreatic pseudocyst, located between the liver and the stomach, is believed to have been due to an attack of acute pancreatitis some months earlier, and the repeated attacks of pancreatitis to incomplete drainage to the duodenum, as demonstrated roentgenologically. The only sign of an infectious process was the increased speed of the sedimentation reaction. Surgical treatment was followed by recovery.

Concerning Displaceability of Pleural Exudates.—Hjelm and Laurell state that small pleural exudates not demonstrable in an upright position can often be established when the patient is recumbent, with the affected side downward.

Surgical Treatment of Habitual Luxation of Shoulder Joint.—Ribbing gives the case reports of five persons operated on according to the method of Clairmont and Ehrlich and observed for from over one year to almost six years. Reluxation occurred in one case after almost two years and has not recurred subsequently in the period of more than two years. There was no recurrence in the other four cases. The shoulder function was slightly impaired in two cases, and good in three.

Case of Papilloma on Valve of Heart.—Haglund's case agrees in the main with the cases of papillary tumors of the heart valves previously described. In this case, however, some of the papillae were grown together.

Specific Infectious Rheumatism.—Gräff distinguishes between rheumatism as a clinical symptom and rheumatic nodules due to an infectious disease with a special causative agent. Specific infectious rheumatism, he states, can appear in different clinical manifestations, as acute specific rheumatic polyarthritis, carditis with various subordinate forms, an angina of special form, nodose rheumatism, laryngitis, recurring or chronic arthritis, and myositis, all of which he ascribes to a specific agent as yet unknown. He discusses the forms of specific rheumatic reaction, the views on the character and morphology of "rheumatism," the formal pathogenesis of specific infectious rheumatism, the primary focus, continuous and hematogenic spread, the exciting agent, nonspecific infectious rheumatism, and therapeutic points of view. Six cases are reported.

with the body weight. He postulated that the oxidative rate in normal individuals was influenced by the amount of food eaten; that amounts beyond the real requirement stimulated the metabolism sufficiently to burn up the excess; that there was no normal basal metabolic rate but that the latter varied with the food. The obese individual was supposed to respond too little to this stimulus. In short, extra food did not increase the weight of normal individuals but did so in certain persons who were abnormal in the sense already described. A careful scrutiny of Grafe's work by experienced students of nutrition will convince them that Grafe made a serious mistake in all his experiments. His subjects were always severely undernourished at the beginning of the experiment and accordingly exhibited the well known depression of basal metabolism that is characteristic of undernutrition. Grafe, however, accepted that rate as normal. Recalculation of his data shows that he did *not* obtain any increase above the real normal as a result of overfeeding.[6] Further, it is rather disconcerting to find that his subjects, who, according to him, were responding normally to overfeeding, nevertheless made enormous gains in weight. Dr. F. H. Wiley and I have recently reinvestigated this question but have been unable to produce any increase in the fundamental rate of oxidation by massive overfeeding.

Studies such as have previously been outlined in this article have convinced us that there is only one basic cause of obesity—that it is invariably the result of overeating; expressed technically, that the available energy of the diet exceeds the transformation of energy on the part of the individual.

Why does any one eat more than he needs? Because the primitive instinct (appetite) is no longer obeyed or because it has been persistently disregarded so long that it has become dulled and notifies its host too late that the bodily needs have been satisfied. The recent studies of Harrington[7] have shown the dominant position of appetite in the establishment of body weight. Especially instructive has been her demonstration that many obese individuals exhibit emotional, unstable personalities and that they have obtained relief during periods of nervous stress by repeated nibbling of food. We have recently treated a patient of this type. She was an elderly woman who weighed 200 pounds (90.7 Kg.). With the onset of the menopause fifteen years earlier she had become nervous and irritable. For years she had munched nuts and candy as a means of controlling her irritability. Since the death of her husband two years previously, she had experienced great difficulty in sleeping at night. She had accommodated herself to this situation by reading and by eating candy, and had eaten about 2 pounds of candy weekly in this way.

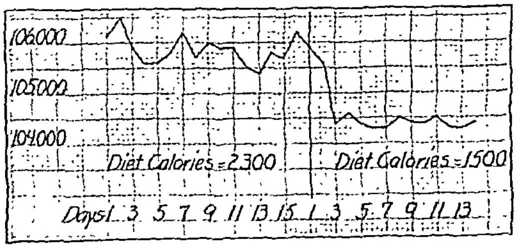

Chart 1.—It was found that 2,300 calories was required to prevent loss of weight in this obese subject. The diet was then reduced to 1,500 calories. An initial loss of weight that lasted for only two days was followed by a period of ten days during which the weight remained fixed, even though there was no lessening of the patient's activity.

Obese persons commonly tell the physician that they do not overeat. Frequently they are telling the truth *as they see it, for they have made the mistake* of measuring their intake of energy in terms of volume. Analysis will show that they prefer highly concentrated food, so that the amount that will distend the stomach to the point of satisfaction contains far too much energy. Miss Harrington has shown that many persons partake of food until a certain volume has been eaten, almost without regard to composition. These persons will gain or lose weight according to the type of diet set before them, since they tend to eat the same quantity of food whether the diet contains 2 or 5 calories per gram.

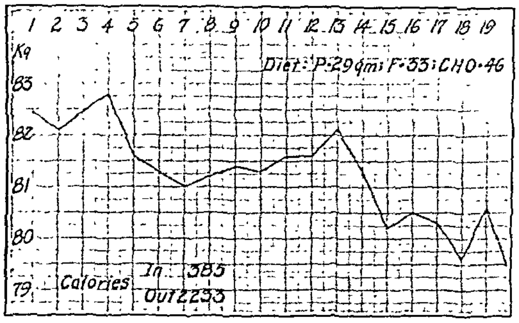

Chart 2.—In spite of rigorous underfeeding, this patient actually gained more than 2 pounds (0.9 Kg.) from the seventh to the thirteenth day.

Another group of patients deliberately try to deceive both the physician and themselves by insisting that they eat sparingly. Even children make this false claim, as may be seen from the following record:

Selma was a very obese high school girl of average intelligence. Her physician, who accepted her story that she never ate breakfast or lunch and that her evening meal consisted only of a small piece of fish, tomato salad, apple sauce and a glass of milk, sent her to the hospital because he suspected that the obesity was symptomatic of a brain tumor. She bore out her statement by eating so little the first week in the hospital that she lost 9 pounds (4.1 Kg.). In the meantime a dietitian had succeeded in gaining her confidence sufficiently to unearth her real food habits. Part of a typical conversation follows:

Dietitian: "What time does your family eat breakfast?"

Selma: "I guess about 7:30."

D.: "What do they usually eat?

S.: "I don't know; I never get up in time to see."

D.: "Do you mean to tell me that nothing at all is left on the table to give you any idea of what they had? Tell me, what kind of cereal do you have?"

S.: "Oh, well, they have oatmeal or corn flakes."

D.: "How do you like your eggs cooked?"

S. (squirming about): "Fried or scrambled."

D.: "Do you have oranges for breakfast?"

S.: "Yes, but I like bananas better."

D.: "Of course you have apple strudel?"

S.: "Yes, and devilsfood or butter cake. Sometimes when we run out of cake, we buy sugar biscuits. We always have rolls—I love them when they're fresh—and pumpernickel bread."

D.: "Do you have two glasses of milk?"

S.: "No, only one."

D.: "What do you eat for lunch?"

S.: "I never eat any lunch."

D.: "Even if the school cafeteria isn't kosher, you could get vegetables and bread and butter, couldn't you?"

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[7] Harrington, Mary M.: Appetite in Relation to Weight, J. Am. Dietet. A. **6**: 101 (Sept.) 1930.

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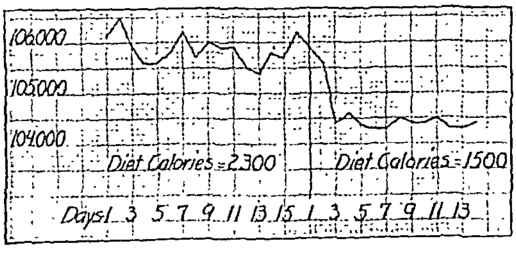

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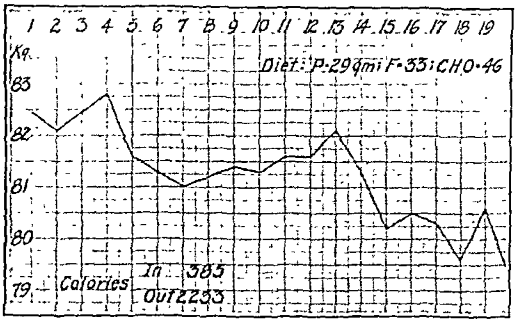

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must be at the base of this inability to lose. Sight is lost of the fact that, when the patient is put at rest or relatively so, the maintenance calories required without loss of weight are far less than when the patient is active and expending energy. The result is that though a strict diet is adhered to, no loss of weight actually occurs; sometimes there is even a slight gain, without necessarily an unusual endocrine disturbance. The treatment of obesity will produce little result unless the physician can actually get the patient to realize that there is one law of nature, and Dr. Newburgh's experiments certainly are convincing of this; namely, that what one does not put into the body in the way of calories will not increase weight and that what one does, will. Before undertaking to restrict caloric ingestion, it is well to study the patient first from a constitutional standpoint as regards his physical, cytologic, chemical and metabolic requirements and not only to suit the dietary restriction and medication to the patient but also to modify his activities in accordance with the measure obtained of the individual patient. Then one should teach the patient to make a hobby of dieting under frequent observation. Dr. Newburgh's contribution is valuable in shedding light on the temporary periods when patients cease to lose in spite of conscientious dieting. May I suggest that its practical application, furthermore, during these periods of water retention would restrict the sodium chloride intake and probably thus overcome the tendency to gain weight.

Dr. M. G. Wohl, Philadelphia: I should like to ask Dr. Newburgh a question. Why is it that, in certain types of obesity, fat accumulations are located in certain parts of the body? For instance, in the eunuchoid type of individual, fat tends to accumulate in the gluteal region, hips, breasts and mons pubis. Such an individual may be made at times to lose weight on a restricted diet, yet in the locations where fat accumulates most, the fat is apt to remain. The girdle obesity of pituitary disease and Dercum's disease in which fat accumulates in isolated masses in places subject to pressure, the face and hands remaining uninvolved, are rather difficult to explain purely on the basis of energy exchange. No one denies that in obesity the law of conservation of energy is operative; but in the obese there must be a disturbance of the mechanism which enables another person to burn an excess of food and retain a stationary weight. There is some other factor, as Dr. Evans said, an unknown physiologic something, which is responsible for some cases of obesity. The experimental work of Raab, Smith and others, dealing with centers in the hypothalamus for fat metabolism, must be taken into consideration. We are all familiar with clinical instances that would seem to support the foregoing point of view. Recently two patients came to our clinic at the Temple University Hospital who gave a history of sudden gain in weight following an attack of encephalitis. The actual food intake was found to be less than the basal caloric requirement of these respective patients. Is there a disturbance in the water and salt metabolism in such patients? We too had concerned ourselves with the water and salt metabolism in obesity and approached it from another angle. I should like merely to add this: In some obese patients, as Dr. Newburgh has said, the changes in weight are due to changes in water retention. By making the McClure-Aldrich test, which consists in intracutaneous injection of 0.8 per cent solution of sodium chloride in the forearm, I found that in some obese persons who have a tendency to retain water the wheal disappeared in a short time (from five to twenty minutes). The Volhard water test has also shown water retention. Sodium chloride of the venous and capillary blood after the oral administration of 10 Gm. of sodium chloride showed a distinct difference at the end of forty-five minutes and of two hours. For instance, in one patient the difference was 100 mg. and in another 90 mg. in favor of the capillary blood two hours after the ingestion of sodium chloride. The sodium chloride must therefore have been retained in the tissues.

Dr. L. G. Rowntree, Rochester, Minn.: I think that we ought to have a consideration of the definition of obesity. I have been interested in the question of water balance. I believe that there is more than water balance concerned. One has to consider depots and the emptying of depots and the functioning of these depots in health and disease, a question about which a great deal of information is needed. It would clarify the situation considerably if loss of weight were expressed as fresh loss and water loss. This might help one to understood a little bit about the depots. I was interested in the last statement about the use of mersalyl, because I am using the same treatment at the present time. There is infinitely more water in these patients than I would believe, judging by what one can get out with mersalyl.

Dr. Emil Bogen, Los Angeles: I wish to inquire whether Dr. Newburgh felt that the increased appetite in the patients was purely a matter of education and perverted habit, or whether local solution or physiologic or other factors might produce increased appetite which should be combated by physiologic rather than psychologic means.

Dr. L. H. Newburgh, Ann Arbor, Mich.: We are beyond the search for a metabolic fault as the cause of obesity. We are now thinking of the condition as related to two fundamental features of humanity. One is the personality, or the mental type, of the individual; and the other is that condition which determines his shape. I tried to emphasize how wrong we all have been in the past when we thought of the obese person as a jovial, happy-go-lucky individual who simply enjoys his food and becomes a little overweight. Of course, there are people of that sort, but that isn't the problem. Many of the really obese are just the opposite. They are hyperemotional; they suffer from insomnia; and they use food, as I said before, as we use cigarets or as some people use alcohol. Many of these people have a passion for food which is as deep, I think, as it is in the chronic alcoholic addict for alcohol. I want to emphasize that type of individual who uses food as a comfort, as a means of combating unpleasant circumstance. I had a patient who weighed 280 pounds (127 Kg.) when she came to the hospital. It was simple to reduce her weight to 160 pounds (72.6 Kg.). Her ideal weight was 140 pounds (63.5 Kg.). When she reached 160, she went to a neighboring town to take care of her mother, who had a chronic illness, of which she died. This patient, an unmarried middle-aged woman, came back having added a good deal to her weight. She said that she understood it perfectly. She detested being around sick people. She had been busy, and the only way she could stand the strain was to have tasty food everywhere she went in the house, and she deliberately ate and ate in order to avoid being cross to her mother. The other equally important thing is something we all recognize. We all know that there are different fundamental types of human beings so far as shape is concerned. We recognize the relation between the hypophysis and the shape of the individual. We know that overfunction of the hypophysis tends toward giantism. We also associate hypofunction of the gland with shortness and stockiness. With those two major types a lot of other features are associated. I see no difficulty in realizing why the short, stocky individual who becomes two or three times his normal weight bulges out in the matter of large fat pads and lumps all over, because he has less length over which to distribute this extra mass. It is interesting to observe that these lumps disappear as the result of undernutrition. Not only does the lump disappear, but the pain goes with it. I don't know how it got there, but I do know that it goes away. We needn't try to get up some special metabolic explanation for the distribution of the fat. If we relate it as much as we can to the inherent physical type of the individual, we shall explain more than we have in the past. The question of appetite is exceedingly difficult. I don't know why some people have large appetites. I do know, however, that children are often trained by their parents to acquire a large appetite gradually. It is striking to see how frequently the parents of obese children are also obese. We are all familiar with the instinctive feeling on the part of the mother that she should feed her child all she possibly can. I suppose that comes from the dim period when no human being ever got quite enough, and the mother's chief business was to see that her child got all the food available. Mothers still continue to do that. So one sees children who have been deliberately trained by their mothers to eat more and more. After a while they acquire a habit of eating more than they should. One can get some idea of the importance of habit if one keeps these people under observation in the hospital for a long time. Some of the most obese patients we have had, those who weighed over results. There is no reason to doubt the accuracy of any of these observations. The matter is not one that is difficult to determine and quite probably each investigator has seen exactly what he has described. The error has been in supposing that one or the other observation represents the universal behavior of the stomach. It would appear to be evident that, unless prevented from doing so, the stomach is capable of delivering chyme to the duodenum with each wave of peristalsis. It is equally clear that it is frequently, perhaps generally, prevented in some way from doing so and delivers chyme only occasionally, at irregular intervals.

Rehfuss,[10] who holds in general to the view that gastric evacuation occurs at irregular intervals, has observed that "at the acme of digestion" the normal stomach shows a tendency toward an opening of the pylorus (exit of chyme) with each peristaltic wave. Probably the rather frequent observation of regular evacuation, especially in the clinic, is to be attributed to the common practice of making observations after a period of fasting and with a relatively small meal. Under these conditions the mechanisms, whatever they may be, that control gastric evacuation may not be stimulated to function.

THE EFFECT ON GASTRIC EVACUATION OF CONDITIONS ARISING IN THE STOMACH

Cannon[11] recognized the importance of conditions in the stomach, other than acidity. He described the delay in evacuation of the stomach when hard particles were present and noted that solid objects were repeatedly turned back by the sphincter.

In a combined chemical and radiologic study on dogs, McCann[12] obtained results that convinced him that gastric evacuation "depends on progressive relaxation of the pars pylorica," which he attributed to a change in irritability brought about by changes in the character of the gastric contents, chiefly digestion of protein. He also observed that free hydrochloric acid did not appear to be a specific stimulus to relaxation of the pars pylorica. Our own observations (Mogan and Thomas[13]) confirm this and also those of Carlson and Litt[14] and others, that acidity, so long as it is confined to the stomach, has little effect on the pylorus. McCann's conclusion that the sphincter is merely the most efficient segment of the pars pylorica is in accord with the conclusion which I[15] reached in 1922, that these structures (sphincter and antrum) are a functional unit.

The character of the intragastric stimuli so far found to have an effect on the emptying process indicates that they are mainly concerned with delaying evacuation until a satisfactory degree of digestion has been attained. If the rate of evacuation is in any way adapted to the functional capacity of the intestine, some other mechanism must be sought.

THE EFFECT ON GASTRIC EVACUATION OF CONDITIONS IN THE INTESTINE

The observation that gastric evacuation may be influenced by conditions in the intestine is very old, and the fact seems well established. The older evidence[16] has been reviewed a number of times and need not be repeated here. In most of the older work the greatest emphasis was put on the influence of acid in the duodenum, but milk[17] and fat[18] in the intestine as well as simple inflation of a balloon in the duodenum[19] have been shown to delay gastric evacuation.

Wheelon and Thomas[8] found that when a dog was given two barium meals in succession the second was evacuated much more slowly than the first. Similar observations were made on human subjects. Rehfuss[10] states that duodenal or even colonic stasis can be demonstrated to reduce or delay evacuation. Cole,[20] after stating his conception of the gastric motor mechanism, makes the following significant statement: "But if all these [peristalsis, sphincter action, and so on] are functioning normally and actively, unless there is a broad peristaltic wave [in the duodenum] to propel the chyme from the top of the cap and carry it through the duodenum in finger-like masses, functional gastric retention ensues."

Alvarez,[21] after an exhaustive review of the literature, reaches the following conclusion: "Although doubt remains on some points, it seems certain that the presence of any substance that in any way stimulates the upper bowel will delay the emptying of the stomach."

ROENTGEN STUDIES OF THE PYLORIC REFLEX

The effect of conditions in the duodenum has, until fairly recent times, been almost universally attributed to their effect on the pyloric sphincter. In fact, expressions meaning "delayed evacuation" and "closure of the sphincter" have been used as though they necessarily meant the same thing. A careful search of the literature has failed to reveal experimental evidence which justifies this point of view. Cannon,[1] indeed, gave a logical reason for adhering to it, but even he failed to make any measurements of the tone changes in the sphincter. His reasoning to the effect that, because gastric peristalsis showed little or no variation, any observed changes in the rate of evacuation must of necessity be attributed to changes in the sphincter, can be valid only to the extent that his method of measuring the force of gastric peristalsis is valid. I submit that the fluoroscope can scarcely be relied on to reveal changes in intragastric pressure, and that relatively feeble peristalsis meeting with little resistance might look very much like more powerful contractions meeting with a more effective resistance in the form of high intragastric pressure.

For much the same reasons, that which appears under the fluoroscope to be an open pylorus may be only the expression of high intragastric pressure and that which appears to be a closed pylorus only an expression of low intragastric pressure. It takes only a little simple arithmetic to show that an intragastric pressure which rises to 40 cm. of water will make a pyloric sphincter which is able to resist 30 cm. of water appear to be relaxed, whereas a sphincter that can resist only 20 cm. of pressure will appear tightly contracted when the intragastric pressure falls to 10.

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[11] Cannon, W. B.: The Mechanical Factors of Digestion, New York, Longmans, Green & Co., 1911, p. 122. Am. J. Physiol. **1:** 368, 1898.

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[21] Alvarez, W. C.: The Mechanics of the Digestive Tract, New York, Paul B. Hoeber, Inc., 1928.

only a few cubic centimeters in twenty-five minutes in another trial. Except for a primary contraction lasting two minutes in the first experiment, the tone of the sphincter was definitely less than normal during the entire time that the acid was in the stomach. Clearly, some mechanism other than pylorospasm operated to slow the rate of evacuation of the acid. The experiments can hardly be taken as evidence for "opening" of the pylorus due to acid in the stomach. The pylorus was not open in the sense that an open pylorus facilitates gastric evacuation. A logical interpretation of the relaxation of the sphincter is that it was due to the small amount of acid that escaped into the duodenum and was incidental to a more general inhibition affecting the stomach.

REFLEX CONTROL OF GASTRIC MOTILITY

Dr. Mogan and I[25] made a study of the effect on gastric peristalsis of placing acid and various other substances in the duodenum. We made graphic records of the gastric contractions by means of a balloon placed in the pyloric canal through a gastric fistula. Injections into the duodenum were made through a duodenal fistula. Experiments were performed on dogs that had survived the fistula operations for several months and were in good condition. In most of the experiments the tonus of the pyloric sphincter was recorded at the same time.

Briefly stated, our results demonstrated that hydrochloric acid, fat, acid phosphate solutions, hypertonic salt solutions and normal gastric contents when placed in the duodenum caused a decrease in the force of the contractions of the pars pylorica. The duration and extent of the inhibition was roughly proportional to the strength of the stimulus to the duodenum. The result was more striking if the stomach was empty, in which case complete cessation of contractions for a time was the rule. It was, however, easily demonstrated in the full stomach throughout the whole period of digestion. We have suggested the name "enterogastric reflex" for this phenomenon.

The effect of fat was observed only after a considerable latent period. This may mean that only the products of digestion of fat are effective stimuli or that the result with fat or its products depends on the liberation of a chemical substance into the blood.[26] Simple distention of the duodenum with physiologic solution of sodium chloride proved also to be effective, but in equal amount saline solution was a much less effective stimulus than the various other substances mentioned. Tap water was a little more effective than saline solution.

Smaller amounts of the various substances were required to cause a detectable inhibition of the contractions of the full stomach than were needed under similar circumstances to cause a minimal increase in the tonus of the pyloric sphincter. In fact, reflex contraction of the sphincter due to chemical irritation of the duodenum proved rather difficult to demonstrate during digestion. Fat did not show any tendency to contract the sphincter but caused marked and prolonged inhibition of the entire pars pylorica.

The results with gastric contents are of particular interest. Transferring 10 cc. of gastric content, following a meal of bread and water, from the stomach to the duodenum caused a noticeable decrease in the force of the contractions of the pars pylorica, without change in the tonus of the sphincter. Analysis of this result proved that it was partly due to the loss of material from the stomach but more largely the result of its action in the duodenum.

Section of the vagi in narcotized animals abolished the inhibitory phase of the response to acid and markedly augmented the contraction phase as manifested by the sphincter.

There is nothing particularly new about the observation that the gastric musculature may be inhibited by stimuli arising in the duodenum. However, previous investigators have concerned themselves with inhibition of the contractions of the empty stomach (hunger contractions) or, with few exceptions, have regarded the result as due to abnormal stimulation. Boldyreff[27] and later Bruenheimer and Carlson[28] demonstrated inhibition of hunger contractions following various forms of stimulation of the duodenum. Kirschner and Mangold[29] saw the reflex in the antral portion of stomachs which had been divided by a complete encircling incision. They thought that their observation had a bearing on the mechanism of gastric evacuation but advanced no sufficient evidence to that effect. Edelmann[18] studied the influence of fat in the duodenum and in other parts of the intestine and got results similar to ours, except that the effect on the sphincter was not observed.

All the work mentioned, including our own, was done on dogs. It is important to know whether a similar reflex exists in the human being. The observations of McClure, Reynolds and Schwartz[7] have already been referred to. Barsony and Egan[30] found that in the human being 15 cc. of 0.36 per cent hydrochloric acid in the duodenum depresses the tone of the stomach and stops peristalsis. They also cite animal experiments of the same character. From their human experiments, in which the roentgen method was used, they concluded that the inhibitory reaction was abnormal, partly because of the strength and quantity of acid necessary to cause a visible response, and partly because their subjects experienced unpleasant sensations when enough acid was placed in the duodenum to stop peristalsis.

The evidence seems conclusive that a reflex mechanism exists through which stimuli arising in the small intestine may operate to inhibit the propulsive movements of the stomach. Its significance as a factor in the regulation of gastric evacuation depends on whether or not adequate stimuli can arise under normal conditions. Our observation of the effect following the transfer of 10 cc. of gastric contents from the stomach to the duodenum is, to say the least, a near approach to normal. We have seen as much as 10 cc. of chyme expelled from the stomach at one time.

In evaluating the results of experiments with pure hydrochloric acid solutions in terms of normal gastric contents, it is logical to compare the power of the hydrochloric acid solutions to neutralize duodenal contents (total acidity) rather than their initial p_H (free acidity). When considered in this way the amounts of acid that have been used as stimuli to elicit the enterogastric reflex do not appear to be so excessive.

Even if it is admitted that most of the stimuli used were abnormal, either in the concentration or in the quantity of material, we may point to the fact that the use of a stimulus of abnormal intensity to demonstrate tion for duodenal regurgitation to neutralize excess gastric acidity. A more satisfactory explanation may be found in the relaxation of the sphincter that occurs as a part of the enterogastric reflex aroused by acid in the duodenum.

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[29] Kirschner, M., and Mangold, E.: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **23**: 446, 1911.

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SUMMARY AND CONCLUSIONS

At the beginning of this article I proposed to outline a theory of gastric evacuation. I am prompted to do this by the conviction that further progress in the study of this subject may be facilitated if some one makes a start in the direction of coordinating the information that has come to light since the "acid control" theory was proposed by Cannon. The following theory will be based on the information presented, which is obviously not complete but is, I think, sufficiently inclusive to represent most of the several trends that have developed in the recent study of the subject.

A dogmatic style is adopted for the simplicity and brevity which it affords, but I do not wish to give the impression that the status of our knowledge warrants an unequivocal statement. There will be no misunderstanding if the term "theory" is understood in its correct sense.

Gastric evacuation occurs whenever the intragastric pressure near the pylorus exceeds the resistance due to the sphincter. The gastric motor mechanism is adapted to establish this condition at regular intervals, corresponding to the rhythm of gastric peristalsis, or the gastric cycle. Such a mechanism, if allowed to operate without regulation, would empty the stomach, regardless of the state of digestion of the food, and without allowing for the ability of the intestine to handle it. Since this does not occur, the mechanism is obviously subject to regulation.

Regulation results from stimuli due to conditions within the stomach and within the small intestine. Stimuli from within the stomach are responsible for withholding the gastric contents until a satisfactory state of digestion has been attained. Stimuli from within the intestine are responsible for adapting the rate of evacuation to the functional capacity of the intestine.

Regulating stimuli from within the stomach are aroused by the consistency and state of chemical digestion of the food. Chemically undigested food (especially protein) and solid particles delay evacuation. Acid, so long as it is confined to the stomach, is not a regulating factor. Intragastric stimuli delay evacuation by increasing the tone of the sphincter and of the antrum, of which the sphincter is "the most efficient segment." They determine the initial evacuation and thereafter play a steadily diminishing rôle to the end of digestion.

Regulation from within the intestine results from chemical and mechanical stimuli. Chemical stimuli comprise acidity (not necessarily free hydrochloric acid), products of digestion (especially of fat), and perhaps physicochemical (osmotic) conditions. These stimuli operate through two reflex paths, one in the myenteric plexus, which mediates a motor reflex, causing increase in tone of the sphincter, and another through the vagi, which mediates an inhibitory reflex (the enterogastric reflex), causing decreased motor function of the entire pars pylorica, including the sphincter. The enterogastric reflex has the lower threshold and ordinarily dominates the local reflex. It is therefore the chief if not the only factor in the chemical regulation from the intestine. Mechanical stimuli (due to distention) are kept at a minimum [32] through a receptive relaxation of the duodenum. Chemical stimuli are diminished in effectiveness by intestinal, pancreatic and biliary secretions, which tend to neutralize acidity, and by intestinal motility, which moves the stimulating material to less irritable segments of the intestine. Thus, gastric evacuation is adapted quantitatively to the secretory and motor capacity of the intestine and its associated organs. The intestinal regulatory mechanism begins to function only after evacuation of the stomach has begun and thereafter plays a steadily increasing rôle to the end of digestion.

The regulatory factors (gastric and intestinal) tend to delay evacuation and are balanced against the inherent rhythmicity of the stomach and possibly also unknown excitatory reflex or chemical stimuli.

The tonus of the pyloric sphincter is chiefly determined by stimuli affecting the stomach muscle as a whole. Hence its tonus changes are in the same direction as, and not opposed to, the tone changes of the remainder of the pars pylorica. It serves as a constant resistance to the passage of chyme and blocks the exit of solid particles. By maintaining a narrow orifice it "filters" the gastric contents. By contracting when the duodenum contracts, it also limits regurgitation.

1017 Walnut Street.

ABSTRACT OF DISCUSSION

Dr. A. C. Ivy, Chicago: I believe that Dr. Thomas has the most normal device and method and preparation for studying the physiology of the pyloric sphincter that have been and are now being employed. In the first piece of research work which I did in the physiologic laboratory, I found that the time of ejection in the duodenum was correlated with the pylorospastic action of the stomach. I should like to ask Dr. Thomas whether he has studied the effect of his device on the emptying time of the stomach. Has he determined the emptying time of the stomach before the insertion of his device and then with his device in place?

Dr. J. Earl Thomas, Philadelphia: The effect of the presence of the apparatus on the emptying time has not been determined accurately. I am under the impression that it is slightly but not greatly prolonged, this being based merely on casual observation in the animals as I studied them on the table. The apparatus does not prevent emptying, because I have habitually left it in over night, the animals being fed after the apparatus was put in place, and their stomachs were found completely empty on examination the next day. I have on several occasions noted that, following a fairly large meal (approximately 300 Gm. of dog biscuit or dog chow with a pint of milk), after two or three hours the stomach was practically empty. This seems to me to be approximately normal.

Action of Spleen on Abnormal Cells.—Recent knowledge makes it almost certain that in pernicious anemia some gastric ferment is absent. The ferment is concerned with the digestion of protein but is probably not pepsin, although its absence appears to be always associated with achlorhydria. The product of the action of this ferment upon protein, which is stored within the liver, appears to be necessary for the full development of the megaloblasts and, if it is absent, these cells are unable to develop and therefore proliferate. Being immature cells they are destroyed by the spleen. In cases of pernicious anemia the administration either of the ferment in the form of raw hog's stomach or of the prepared product in the form of liver, in which it is stored, allows the megaloblast to develop and causes a rapid improvement in the symptoms. So beneficial are the results of this form of treatment that splenectomy today is hardly ever considered. It would, however, appear probable that occasionally cases might be seen in which the destructive effect of the spleen had become so established that the administration of this substance would be insufficient unless accompanied by splenectomy.—Walton, A. J.: The Surgery of the Diffuse Splenomegalies, *Lancet* **2**:1004 (Nov. 7) 1931.

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[32] Joseph, D. R., and Meltzer, S. J.: Am. J. Physiol. **27**: xxxi, 1911.

which the procedures are carried out, quite as much as one must reckon with the individual patient's systemic state and powers of resistance. The prime necessity is to be open minded. This applies with equal force to the operator and to the audience that listens to his report of the result of his efforts.

HISTORICAL REVIEW

More than a century has elapsed since hypertrophy of the prostate was recognized as a frequent cause of urinary obstruction. The first practical clinical work concerning it seems to have been that of Sir Everard Home, and the first monograph having the pathologic condition of the prostate as its subject came from his pen. During the early and middle years of the nineteenth century the names of surgeons well known in other fields are to be found connected with attempts to relieve the distressing conditions brought about by hypertrophy of the prostate. Guthrie, in England, and Civiale and Mercier, in France, elaborated technic and devised instruments for this purpose. In 1878 the Italian Bottini substituted the cautery for the knife as a means of excision of hypertrophied tissue, and four years later Leisrink was first to make use of a suprapubic cystotomy incision as an avenue of approach instead of the perineal route followed by the medieval lithotomists.

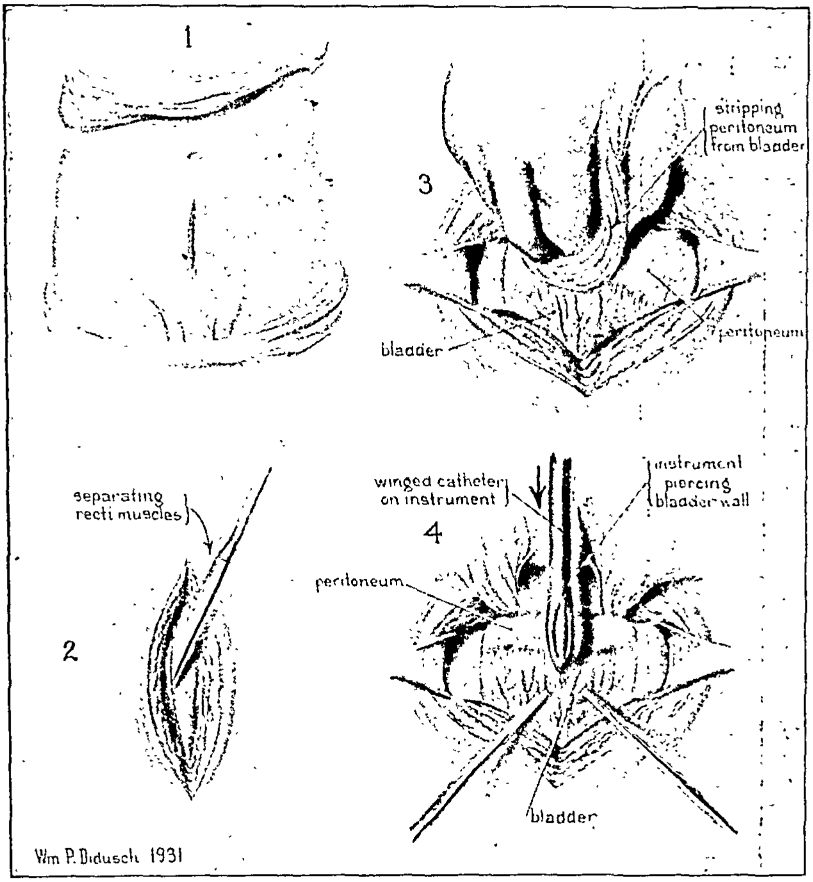
1
3
stripping peritoneum from bladder
bladder
peritoneum
separating recti muscles
2
winged catheter on instrument
instrument piercing bladder wall
4
peritoneum
bladder
Wm P. Didusch 1931

Fig. 3.—Suprapubic cystostomy (use of Mr. Kidd's instrument): 1, skin incision. 2, rectus muscles are separated by handle of scalpel. 3, stripping peritoneum from bladder wall; bladder below and peritoneum above. 4, peritoneum has been drawn upward, bladder exposed, Allis clamps applied and the sharp knife end of the instrument is plunged into the bladder. A winged catheter has been placed on the instrument, and the knife has pierced the tip. The catheter is carried into the bladder with the instrument and then the instrument is removed, leaving the catheter in place.

So rapid was the advance in surgery of the prostate at this time that in 1890 Watson was able to find material to fill a volume of considerable size devoted exclusively to this subject. In this book both suprapubic and perineal procedures are discussed, and it can be perceived that already the surgical fraternity was dividing into factions having pronounced opinions as to the relative merits of the two avenues of approach. Some time before Watson's book made its appearance, McGill of Leeds, England, delivered before the Clinical Society of London a description of an operation he had devised, using Sir Henry Thompson's suprapubic lithotomy opening by which to reach the prostate and give visibility to the site of the tissues he then proceeded to eliminate. In presenting this operation, McGill was the first to promulgate the idea that permanent relief of urinary obstruction was not only theoretically possible but clinically probable.

McGill's work turned attention to the advantages of the suprapubic approach and did much to free British surgeons from the inherited trammels of the old ways of "cutting for stone." In the United States the perineal route had long before found an ardent advocate in Gouley of New York, in whose textbook this avenue of access to an enlarged prostate is mapped out in detail. A better known American surgeon, Belfield of Chicago, advocated a combination of the suprapubic and the perineal methods, yet there is little in the literature of the period that indicates a general acceptance of his views. The perineal method found a champion in England in the person of Reginald Harrison, who included a description of perineal prostatectomy in his textbook. Yet it is customary to look, not to England but to Germany, for the origin of the procedure as it is now used. It was Zuckerkandl who, two years after Harrison's publication, put forward the first complete prostatectomy by the perineal route of the type practiced today. Thereafter the two schools of prostatic surgery diverged widely from each other as the development of the separate operations moved steadily forward.

With the opening of the twentieth century, Albarran in France, Freyer in England, Young in America, and many another besides, attacked the problem presented by prostatic hypertrophy, and advanced toward the procedure of complete, as opposed to the partial, elimination of the diseased tissue. As far back as 1895 Eugene Fuller emphasized the necessity for doing this, if lasting results were to be obtained from attempts to do away with prostatic urinary obstruction.

Freyer made a remarkable contribution, not only to operative work on the prostate but to operative surgery in general. The most valuable feature of his procedure is avoidance of trauma to the upper part of the vesical orifice, the operator working away from—not toward—the important plexus of Santorini. Through a suprapubic incision he located the most prominent portion of one lateral lobe. The mucous membrane of this portion was scored through with the sharpened fingernail and the enlarged glandular tissue gradually prolonged catheter drainage these disadvantages will have to be overcome in the best way possible. We have found that statistics on this subject are apt to be misleading.

When suprapubic cystotomy is a routine the suspicion arises that some of the cases might have done equally well or better with an indwelling catheter. This has, indeed been our actual experience. Rarely, a patient whose bladder neck is in good condition, who shows no edema and exhibits no abnormalities in pulse and temperature, with good reports on urinary function and output, will require no cystotomy. There can be no hard and fast rules laid down. We must trim our sails to meet the wind.

The same is true of the choice of carrying out the procedure in one, two or three stages. Of the three stage procedure, beginning with the prevesical section described by Handley Williams and recently recommended by Keyes and Neff, it may be said that, since we have used the transverse incision suggested by Macgowan nearly twenty years ago, a three stage procedure is never necessary. This incision, as modified by one of us (O. S. L.) is an inverted V, deepened through the fascia of the recti on either side, giving an excellent exposure of the fundus, but when so wide a view is not necessary, simple puncture, as carried out with the instrument designed by Mr. Frank Kidd of London will be found adequate.

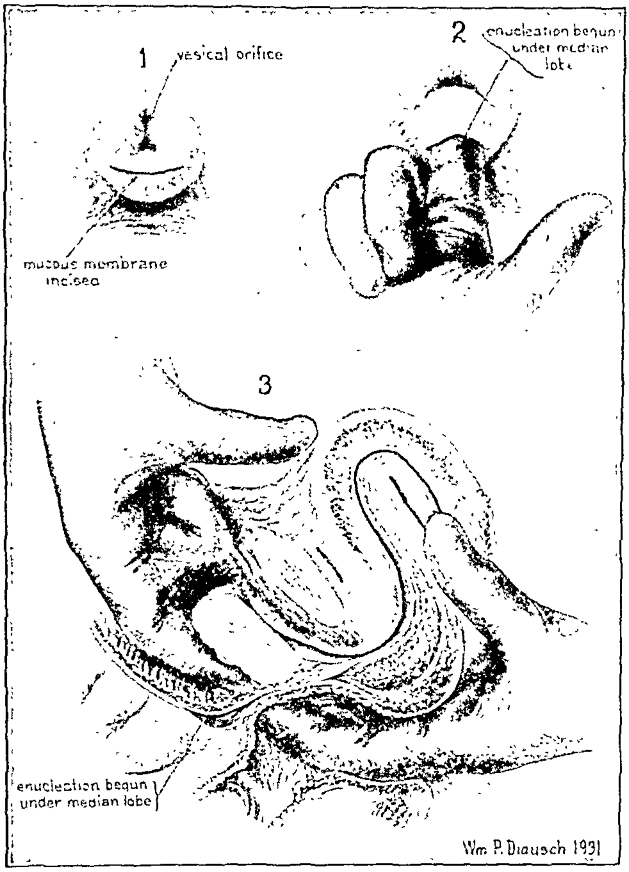
1
vesical orifice
mucous membrane incised
2
enucleation begun under median lobe
3
enucleation begun under median lobe
Wm P. Didusch 1931

Fig. 5.—Suprapubic prostatectomy: 1, the capsule slit. 2, the finger is then introduced and enucleation commenced. 3, sagittal view of enucleation.

Preliminary drainage is usually effected by means of the incision just mentioned, a more detailed description of which will be found in the article published by one of us[1] recently. An inverted V incision—its apex well above the highest point attained by the dome of the distended bladder—is used, the sheath of the recti being incised on either side and the muscles themselves cut, either partially or entirely as the case may demand. Dissection along the urachus leads directly to the highest point of the bladder fundus. The exposed bladder is then grasped by Allis clamps, incised between the clamps, and its content removed by suction. A double suction tube is sutured to the apex of the wound, plain catgut sutures being passed through the fascia. A small cigaret drain is inserted along the vesical suture line.

Not every case, however, is suited for this particular type of drainage. If such a wide exposure is not found to be necessary, the method of Kidd, to which reference has already been made, will give good results. The instrument that Mr. Kidd has designed is, by the way, a return to the very ancient methods of relief of urinary obstruction resorted to by the surgeons who first undertook to treat prostatic hypertrophy. No more exact measure of the enormous advances which little more than a century has seen in urologic surgery could be supplied. With modern knowledge and equipment, puncture of the bladder, once a most hazardous procedure, is employed by the foremost members of the urologic profession with safety and facility.

Kidd employs a vertical incision which is deepened by separating the recti with the handle of the scalpel. The peritoneum is stripped from the bladder wall and drawn upward, exposing the bladder. After the application of Allis clamps, the cutting end of the Kidd instrument is plunged into the bladder wall, carrying with it a winged catheter, previously placed on the instrument, the tip of which is pierced by the knife. When the cavity of the bladder is entered the instrument is withdrawn, leaving the catheter in place.

In general, it may be said that the preoperative care given suprapubic prostatectomy patients is identical with that expended on those treated by the perineal procedure. It is not uncommon to hear a surgeon explain that ureteral catheter drainage leaves the suprapubic region a virgin field for operative intervention, which is much more convenient for the operator. While this is unquestionably true, it would seem proper to suggest that it is the best welfare of the patient, rather than the convenience of the surgeon, which should be considered.

OPERATIVE TECHNIC

The suitably prepared and anesthetized patient is arranged on the table in the proper place to assume the Trendelenburg position. The high suprapubic fistula is then incised downward toward the symphysis and the bladder wound incised toward the vesical orifice. The capsule of the most projecting portion of the prostate is opened with scissors. This is usually one of the lateral lobes. The operator's finger is inserted through the opening, the line of cleavage established, and the enucleation accomplished by sweeping the index finger in all directions inside the capsule until all the enlarged gland has been freed from it. Great care is exercised to avoid splitting the top of the vesical orifice, with the inevitable injury to Santorini's plexus this accident involves. This follows the technic originated by Freyer and practiced generally by present-day British surgeons.

When the prostate is enucleated by the perineal route according to our technic, the verumontanum is respected and the orifices of the ejaculatory ducts do not suffer injury. Therefore, preliminary vasotomy is unnecessary. When we employ the suprapubic procedure, on the other hand, we have found

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1. Lowsley, O. S.: Am. J. Surg. 11: 305 (Feb.) 1931.

3. If the prostatic hypertrophy has dilated the internal sphincter, enucleation of the gland is better done by the suprapubic route. When the enlarged gland has remained within its natural anatomic limits, it can be reached more safely and conveniently by way of the perineum.

4. We prefer the technic of suprapubic prostatectomy devised by Freyer more than thirty years ago, whose procedure consisted of enucleation of the gland through an incision in its capsule, using the finger to detach it *from the capsule, and observing great care not to injure* the plexus of Santorini situated at the top of the vesical sphincter, as such injury is likely to induce severe hemorrhage.

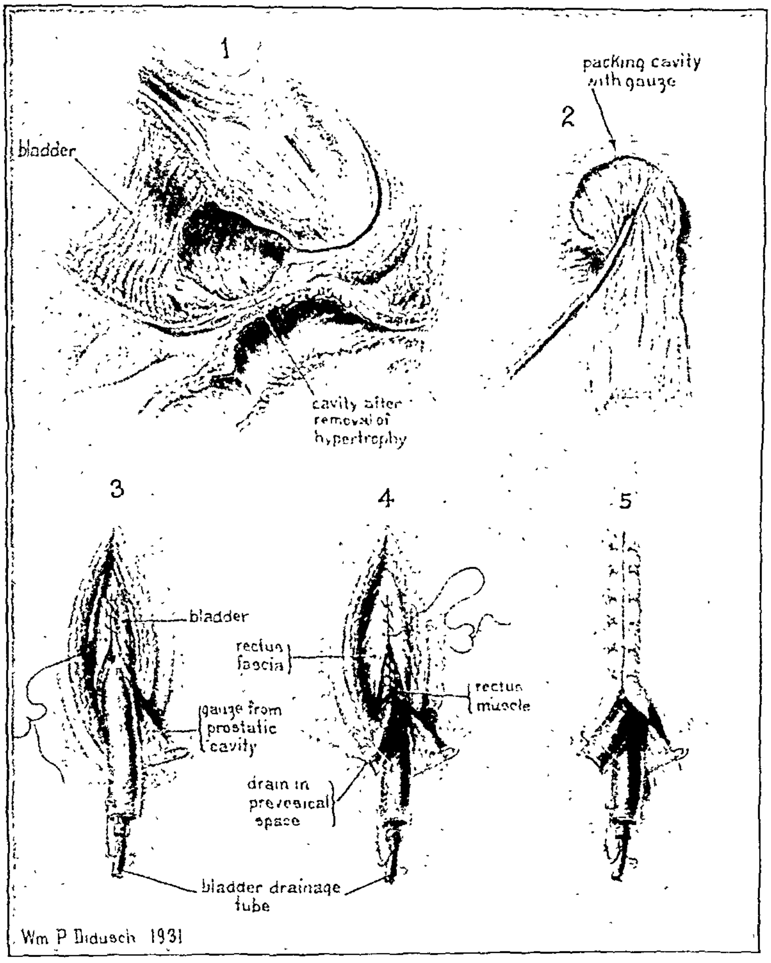
1
packing cavity with gauze
2
bladder
cavity after removal of hypertrophy
3
4
5
bladder
rectus fascia
rectus muscle
gauze from prostatic cavity
drain in prevesical space
bladder drainage tube
Wm P Didusch 1931

Fig. 7.—Suprapubic prostatectomy: 1, sagittal view showing the appearance of the cavity after removal of the prostate. 2, the cavity is packed with petrolatum gauze. 3, the Kenyon double suction tube is fixed in position at the top of the vesical wound. 4, at the top of the wound in the body wall, a cigaret drain is being inserted. 5, skin incision closed, with tube and drains emerging at the top.

5. As suprapubic enucleation is prone to tear the mucosa from the verumontanum, thus exposing the orifices of the ejaculatory ducts to infection, a bilateral vasectomy should always accompany suprapubic prostatectomy.

6. Preliminary drainage is a prerequisite to successful prostatectomy but may be accomplished in a number of ways, according to the needs of the individual patient. Cystotomy employing MacGowan's transverse incision, vesical puncture with Kidd's instrument, and the indwelling catheter have all given us satisfaction on different occasions.

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PROSTATE OPERATION

PROSPECTS OF THE PATIENT WITH PROSTATIC DISEASE IN PROSTATECTOMY VS. RESECTION *

THEODORE M. DAVIS, M.D.
GREENVILLE, S. C.

In considering the prospects of patients with any pathologic condition, it is necessary to consider the etiology. Neither the origin nor the nature of enlargement of the prostate gland is established. The controversy continues whether it is a true adenoma or a hyperplasia. Evidence seems to justify the opinion that the enlargement is a hyperplasia, probably from unrecognized or insufficiently treated insidious infection within the prostate.

Any condition that produces such serious effects on the urinary tract and on the general physical well being of the individual should stimulate the cooperation of the entire medical profession toward preventing patients from entering on the period of obstruction. This may be done by early recognition of infections within the prostate and by instituting the proper treatment for the correction. It is incumbent on the urologist to inform the members of the medical profession regarding the importance of eliciting and recognizing the initial signs and symptoms of obstructive lesions. They should be taught to inquire into the urinary symptoms of their male patients and to suspect obstruction in all cases of undue frequency, hesitancy or diminished force with a sensation of inability to empty the bladder completely. The presence of residual urine should indicate the necessity of a thorough urologic study. The absence of residual urine does not eliminate obstruction and, unless the symptoms can be explained by some other pathologic condition, a visual examination of the vesical orifice should be made.

If cases of obstruction are to be prevented from advancing to the stages at which it is now the rule rather than the exception to see them, the fallacy should be emphasized of relying on rectal palpation of the prostate to determine the presence of prostatic obstruction, as taught in medical schools, until the advanced symptoms of prostatism have supervened.

Until the present decade, the avenue of relief in the great majority of cases presenting obstruction has been through prostatectomy. This operation, being a major procedure, has deterred the patient with beginning obstructive lesions from seeking relief and caused the physician to use palliative measures until irreparable damage is done to the urologic and general systems of the individual.

Is it not reasonable to believe that, with the advent of an era of prevention in the potential stages of hypertrophy or, in the early cases, by checking with minor measures the advance of these cases to the extreme stages, the prospects of future patients with prostatic no hesitancy in submitting to additional resections; in fact, only 7 patients in this series of more than 200 have required morphine or other sedative following the operation. This should give some idea of the comfort of patients who have been operated on, as contrasted with prostatectomy. There has been no endeavor to establish any postoperative record and a standing order has been given for an opiate or hypnotic in all cases when necessary. Only the seven mentioned requested the drug.

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* From the Crowell Clinic of Urology and Dermatology.

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

COMPLICATIONS

Complications following resection have been surprisingly insignificant. There has not been a death following the operation in more than 200 cases as compared to a mortality of 4 per cent or higher for prostatectomy. There has been an elevation of the temperature from 99 F. to 103 F. in about 15 per cent of the cases; this usually subsided within forty-eight hours. A chill has preceded the elevation in eleven cases. Epididymitis has occurred in six cases, a percentage of less than 3. Preliminary vas ligation has not been employed.

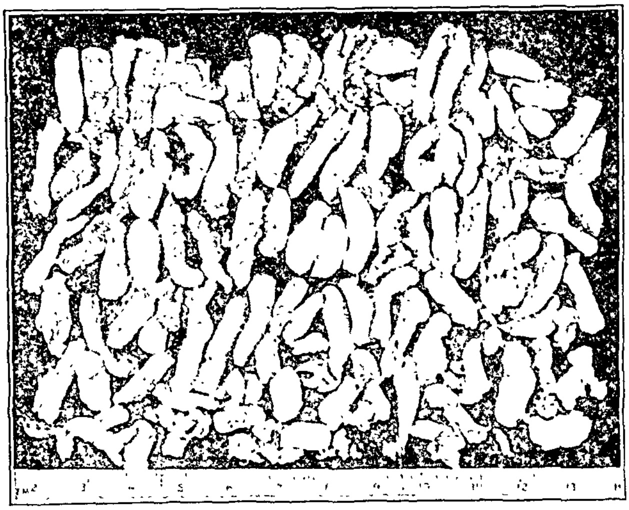

Fig. 2.—Tissue removed, weighing 24.7 Gm. and constituting the middle lobe, with resulting relief from obstruction.

HEMORRHAGE

The urine passed following resection is usually clear or slightly pinkish. In only one case has it been bloody. This was a case in which a carcinoma involved the vesical wall lateral to the prostate. During the operation it was observed that the bleeding was in an area to the left of the prostate which could not be reached with any instrument at hand. Suprapubic cystotomy was necessary to control the hemorrhage by direct coagulation. This afforded an excellent opportunity to examine the vesical orifice after a resection. In this case there was a cavity as large as a hen's egg; the cavity was clean and free from hemorrhage, and very little prostatic tissue remained around the cavity. Only one case of secondary hemorrhage has occurred; this on the tenth day following a 50 mile automobile ride. This hemorrhage was easily controlled by coagulation by the urethra.

HOSPITALIZATION

A few patients with small enlargements who lived in close proximity have not been hospitalized at all. The average stay in the hospital has been four days; the longest has been ten days after operation, except in the few instances that required the two-stage resection. The latter cases were dismissed under two weeks as compared with the lengthy hospitalization of prostatectomy.

RECURRENCE

Reoperation has been necessary in only seven cases (malignancy excepted) in which a two-stage operation was not anticipated at the initial operation. Six of these were the earlier cases in which sufficient tissue was not removed. This should have been expected with a pioneering operative procedure. During the past four years, not one patient in whom resection was done has required additional treatment for the relief of obstruction (malignant cases excepted). In eleven of the cases of resection, prostatectomy had been done from two months to three years before in which time obstruction had recurred; in four cases, relief has been required in from three to fifteen years.

POSTOPERATIVE EXAMINATION AND HISTORY

All patients are examined for residual urine and infection. A cystoscopic examination of the vesical orifice is made in all patients who will permit the procedure. Many object to this as they are comfortable and do not wish to undergo the ordeal. About 50 per cent of the patients have been observed for a period of three years. One patient died of pneumonia four months after the operation; two others have succumbed to diseases not related to the urologic tract. Three carcinoma patients have failed to answer a questionnaire; one of these I have learned is living three and a half years after the operation, and the other two presumably are dead. The other patients report that they are comfortable and comparatively free from urinary symptoms.

One hundred and six report that they have to void once a night. Thirty-eight report an occasional night voiding; twelve report that they void from twice to three times at night. The majority of the patients empty the bladder completely; no patient had a residual urine of over 2 ounces. Patients that have returned for a check had no increase in the residual urine and most of those with a slight residual urine shortly after the operation empty the bladder completely. The urine following resection in cases without preliminary drainage shows pus cells for several weeks; those with drainage have infected urine, which later, with adequate drainage, subsides in several months without treatment. Appropriate treatment in these cases will hasten the disappearance of the infection.

Classification of Cases in Which Resection was Performed

Type of Case		Number of Cases
Contracted vesical orifice		18
Median lobe		66
Unilateral and median lobe		30
Unilateral lobe		8
Bilateral lobes		42
Bilateral and median lobes		36
Carcinoma		30
Following prostatectomy:		
Perineal	4	
Suprapubic	12	
	—	16
Total		246

ANESTHESIA

Sacral or caudal block is the anesthesia of choice. This is produced by injecting 20 cc. of 3 per cent procaine hydrochloride or 1 : 1,000 nupercaine into the

Patients are usually dismissed from the hospital from twenty-four to forty-eight hours after the catheter is removed, with instructions to report at intervals for inspection.

Tissue removed by resection is not seriously changed histologically and is examined as a routine for evidence of malignancy, and the like, both by frozen section and in paraffin blocks. A number of the sections cut by the loop are mounted in the permanent paraffin blocks so as to give a thorough examination of the tissue removed.

In cases with a preoperative diagnosis of malignancy, sufficient tissue is removed to give as large an opening as possible, and the entire surface sectioned is coagulated with diathermy. Radium element or the required number of emanation seeds are implanted through the perineum within the growth around the orifice. In every case of malignancy it has been possible to restore to these unfortunates the ability to empty the bladder through the natural passage without the discomfort and inconvenience of the permanent suprapubic drainage. All these patients have resumed their usual vocations, which drainage would have prohibited.

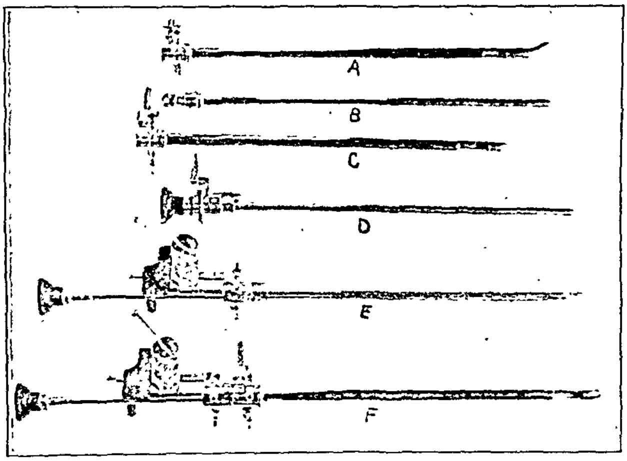

Fig. 4.—Author's improved resectoscope equipment: *A*, original Stern's sheath with long beak and five-eighths inch fenestrum; *B*, obturator; *C*, author's sheath with short straight beak and seven-eighths inch fenestrum with depth three-fifths that of sheath; *D*, observation right-angled telescope, *E*, working parts; *F*, instrument assembled.

The following cases selected from the series will be reported briefly:

Case 1.—*History*.—B. F. K., a man, aged 78, had complete retention for ten days, relieved by intermittent catheterization. His general condition was poor; the blood pressure was 210 systolic and 100 diastolic. The heart was enlarged generally; there was a systolic murmur transmitted to the axilla. Nonprotein nitrogen was 85 mg. per hundred cubic centimeters. Excretion of phenolsulphonphthalein, 20 per cent, in one hour followed intravenous injection. Rectal palpation revealed large bilateral hypertrophy. Cystoscopic examination revealed large intravesical bilateral and middle lobes; seven small calculi in the bladder; 32 ounces of residual urine; chronic cystitis, and marked bladder rugae. Gradual decompression was instituted for six weeks with the usual treatment to restore urinary and cardiac function.

Resection.—Stones were removed with the rongeur; the lateral and middle lobes were removed in three hours and ten minutes. The retention catheter was removed in forty-eight hours and the patient voided a large forcible stream. He was discharged from the hospital on the third day. Convalescence was uneventful. Two months after the operation the patient completely emptied the bladder; the urine is free from infection. He is in excellent health at the present time, considering his age and heart condition, which is adequately compensated, and he is free from urinary symptoms.

Case 2.—*History*.—H. J., a man, aged 67, Negro, a laborer, was admitted to the hospital in a moribund condition; the lower extremities and the scrotum were markedly edematous; there was marked dyspnea; the patient was semiconscious. The blood pressure was 220 systolic and 110 diastolic; there was complete retention. Nonprotein nitrogen was 78 mg. per hundred cubic centimeters; creatinine, 3.5 mg. Gradual decompression by urethral catheter was instituted. Dextrose was given intravenously; forced fluids and alkalis were given. The patient reacted well. One week after admission, rectal palpation revealed a large prostate of firm consistency, not nodular and with no areas of stony hardness. Cystoscopy revealed great bilateral and median lobe enlargement and the bladder chronically inflamed.

Resection.—The lateral and median lobes were removed, the operation requiring two hours and fifty minutes. Tissue examination revealed prostatic hyperplasia. The retention catheter was removed in forty-eight hours; the patient voided a large forcible stream. Convalescence was uneventful. The patient was discharged from the hospital on the fourth postoperative day. One month after operation the patient reported no night voiding. The urine was free from infection. There was no residual urine. Sexual function was normal for his age. He has been working as a laborer since two weeks after the operation. Two and one-half years after the operation the patient is free from urinary symptoms. At this time cystoscopic examination revealed a large fossa where the prostate was removed. There was no evidence of urethral encroachment or contracture of the tissue due to resection. Three years after operation the patient is in excellent condition.

Case 3.—*History*.—R. S. M., aged 51, a physician, has had complete retention for the past three years. He was informed at one of the large national clinics that he had a cord bladder. At another he was told that the clinicians did not think that it was a cord bladder as the blood and spinal fluid Wassermann reactions had remained persistently negative. There is a negative syphilitic history. The blood pressure was 130 systolic and 90 diastolic. Nonprotein nitrogen was 33 mg. per hundred cubic centimeters. The excretion of phenolsulphonphthalein was 66 per cent in two hours. The patient had a complete retention and was offered no relief other than by catheterization, which he had resorted to three times in twenty-four hours for the past three years. Rectal palpation revealed a very small prostate with no evidence of enlargement. Cystoscopic examination revealed a bladder with fine trabeculations and a chronic cystitis; a diverticulum opened to the left of the midline; the lateral lobes of the prostate were not enlarged; there was a small bar formation in the floor of the urethra.

Resection.—The median bar was resected in twenty minutes. Tissue examination consisted of fibromuscular elements. The retention catheter was removed in forty-eight hours; the patient voided a large forcible stream without effort, completely emptying the bladder. The patient was discharged from the hospital twenty-four hours after the catheter was removed. He is delighted with his condition and is free from urinary symptoms.

Case 4.—*History*.—W. M. W., aged 68, a retired farmer, had had a suprapubic prostatectomy six years before. His general condition was good. He voided for six months after the operation; he had worn a retention catheter for about five years rather than submit to another prostatectomy. Rectal examination revealed a large prostate, not nodular, with no areas of stony hardness. Cystoscopy revealed large intravesical bilateral lobes with a deep notch between the lobes. The posterior urethra was tortuous and the landmarks were absent.

Resection.—The lateral lobes were removed in two hours and forty-five minutes. Tissue examination revealed prostatic hyperplasia. The retention catheter was removed in forty-eight hours; the patient voided a large forcible stream without difficulty, exclaiming, "Ponce de Leon looked for the fountain of youth and here it is." Convalescence was uneventful. The patient was discharged from the hospital twenty-four hours after the catheter was removed. One month after operation the

CARCINOMA OF CERVIX UTERI

REPORT OF ONE THOUSAND FIVE HUNDRED AND SEVENTY-FOUR CASES *

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To the late Dr. Harold Bailey belongs the credit for organizing and establishing the department of radiation therapy in the gynecology clinic at the Memorial Hospital. Bailey began his work with radium in 1915 and remained in charge until the fall of 1921.

In those first years the work was of necessity largely experimental; types of applicators and methods of approach had to be developed, and as a rule only advanced cases were treated. Moreover, much time was spent in studying dosage and tissue reactions to radium. During those years, the low voltage x-ray machine was available for roentgen therapy but was not utilized. Dependence was placed on radium alone.

By 1918 a working plan had been developed which consisted in the use of radium applied to the cervix in four ways: (*a*) vaginal, (*b*) intracervical and intra-uterine, (*c*) external, by the use of a radium block at 4 cm. in six positions about the pelvic circumference, and (*d*) unfiltered glass radon seeds for interstitial irradiation.

In this way Bailey brought into effect and established at the Memorial Hospital the so-called cross-fire principle of radiation therapy in carcinoma of the cervix. Under this plan the lesion in the cervix and the lymphatic drainage area leading from the cervix, through which metastases might be expected to spread to adjoining tissues or to distant parts, were subjected to radiation in as heavy dosage as could be given without destroying the integrity of the normal structures. Moreover, Bailey established the plan also of giving a large dose of radium, thereby finishing the course of treatment in a short time. This was known as the massive dose method of treatment, as distinguished from the continuous application of a small quantity of radium for five days or more, according to the method followed by Regaud in Paris, or the divided treatment method of Forssel and Heyman in Stockholm, in which a series of three treatments with radium is given within four weeks, with an interval of one week between the first and the second treatments and two weeks between the second and the third treatments.

Since 1918 all primary metal filters used by us at the Memorial Hospital have been equivalent to 2 mm. of brass, but for intracervical and intra-uterine use they are made of a mixture of gold and platinum, 0.5 mm. thick, and have from 1 to 2 mm. of black rubber outside the metal. In vaginal applicators, brass is the metal used for filtration on the treatment surface. For interstitial radiation, small gold radon tubes with a filtration of 0.3 mm. of gold are used.

The cross-fire principle of technic established by Bailey is still in use at the Memorial Hospital as well as the massive dose plan by which all major radium treatments are finished as a rule within a time period of seventy-two hours.

As our experience has increased, certain changes in technic have gradually evolved (table 1). For instance, in December, 1921, radium for external irradiation of the pelvis was replaced by low voltage x-rays and a pelvic cycle of four exposures was given.[1] This change was made after conferences with the biophysical department, in which it was demonstrated that 10 cm. below the skin surface, which is equivalent to the midpoint of the average female pelvis, a greater percentage of effective radiation could be obtained with the low voltage x-ray machine than was obtained with the radium block then in use.

Throughout 1922, 1923, 1924 and 1925, all cervix cases were treated with radium applied (*a*) within the vaginal tube against the cervix, (*b*) within the cervical and uterine canals, (*c*) with unfiltered glass radon seeds buried in the outer margins of the cervical lesion, and (*d*) with a low voltage x-ray cycle from one to two weeks later.

In 1926 the unfiltered glass radon seeds for interstitial treatment were replaced by gold seeds or tubes of 0.3 mm. gold filtration, thereby doing away with the soft beta ray effect and obtaining a more uniform gamma radiation. High voltage x-ray machines with a peak voltage of 200 kilovolts replaced the low voltage machines previously in use; this change again increased the effective radiation obtainable throughout the deeper portions of the pelvic field.

Table 1.—*Changes in Technic of Radiation Therapy in Carcinoma of the Cervix at the Memorial Hospital from 1918 to 1930, Inclusive*

1918-1919-1920-1921	1922-1923-1924-1925	1926-1927-1928	1929-1930
Vaginal bomb 1,000 to 3,000 millicurie hours 2 mm. of brass filtration	Same	Vaginal applicators of various designs and shapes; dosage and filtration same as before	Same
Cervical and uterine capsules, 1,500 to 3,000 millicurie hours, 0.5 mm. of platinum, 1 mm. of rubber	Same	Same but filtration changed to 0.5 mm. of gold and 1 mm. of rubber	Same
Unfiltered glass radon seeds, 200 to 2,000 millicurie hours	Same	Replaced by gold radon seeds, 0.3 mm. filtration	Omitted from primary treatment but may be given later
External application of radium in 6 positions around pelvis for 9,000 to 18,000 millicurie hours	Replaced by low voltage x-rays, 4 mm. of aluminum filtration, 30 cm. T.S.D. 140 kilovolts and 60 milliampere minutes; 4 fields surrounding pelvis	Replaced by high voltage x-ray cycle: 200 kilovolts, 0.5 mm. copper, 2 mm. aluminum filtration; 50 cm. T.S.D.; 12×10 field; 240 to 300 milliampere minutes; 4 fields	Same but given before application of radium in all but the earliest cases

The next important change in technic was instituted late in 1928.[2] It had become almost a routine procedure for us to use interstitial radiation in almost every case, in order to reinforce the surface applications of radium at the time of the first treatment. The total interstitial dosage applied by means of gold filtered radon seeds varied from 200 to 2,000 millicurie hours, according to the extent of the lesion.

A critical study of end-results in many of these cases led us to the conclusion that too many apparently favorable cases were not doing as well as had been anticipated, in fact seemed to show unusually rapid extension of active and uncontrollable cancer metastases, especially in the retroperitoneal lymph glands. It seemed to us that this could readily be caused by the trauma associated with the introduction of seeds or needles into viable cancer tissues, thereby opening up the perivas-

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* From the Memorial Hospital.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, *Philadelphia, June 10, 1931.*

[1] Bailey, Harold; and Healy, W. P.: Am. J. Obst. & Gynec. 6: 402 (Oct.) 1923.

[2] Healy, W. P.: *Ann. Surg.* 93: 451 (Jan.) 1931.

Histologically, 97.3 per cent of our cases were squamous epidermoid carcinomas and 2.7 per cent were glandular or adenocarcinomas. Additional cases were reported by the pathologist as adenocarcinoma, but a careful histologic and clinical study indicated that the cases in this group were of endometrial origin and represented secondary cervical involvement complicating primary carcinoma of the corpus (table 3).

Since the advent of radiation therapy in the treatment of carcinoma of the cervix, it is now generally recognized that the squamous epidermoid cancers can be subdivided into three groups, according to variations in histologic characteristics indicated by different degrees of cellular anaplasia, and that the radiosensitivity of these groups will vary with the degree of anaplasia present.[4]

The more fully developed the cancer cell and the less the degree of anaplasia the more radioresistant the lesion will be, whereas the more embryonal the type of cancer cell and the greater the evidence of anaplasia present the more radiosensitive the lesion may be expected to be and the more satisfactory the response to radiation therapy. In general, it may be said that about 20 per cent of all cases of squamous cancer of the cervix tend to be radioresistant. The remaining 80 per cent will vary in radiosensitivity depending on the relative proportion of adult, transitional or embryonal types of cells present.

The response to radiation therapy is also affected by the extent of the lesion as regards infiltration or destruction of normal tissues, amount of infection present, ability of the local tissues to respond to treatment, and the general condition and constitutional reaction of the patient.

A small number, about 15 to 20 per cent, will be quite responsive to irradiation, so that even advanced cases in this very radiosensitive group do much better than one expects.

Because of the now recognized tendency to radiosensitivity in such a large number of our cases of carcinoma of the cervix, we have deemed it desirable to treat all but the most favorable of our cases first with high voltage roentgen rays before applying radium.

Table 3.—*Carcinoma of Cervix Uteri*

	No. of Cases	Per Cent
Squamous epidermoid carcinoma.............	1,531	97.3
Adenocarcinoma...............................	43	2.7
Total primary cases, 1918 to 1930 inclusive	1,574	

Certain interesting observations have been made. When the follow-up notes on a case indicate that there has been no noticeable response to the roentgen cycle, we have found that it has also failed to respond as fully as was expected to subsequent radium treatment, and such patients often fail to live as long as the original clinical grouping indicated should have been the case. We are inclined to believe that clinically early or favorable cases of this radioresistant type should be treated by simple panhysterectomy from four to six weeks after full radiation treatment.

Conversely, quite advanced cases which happen to respond unusually well to the roentgen treatment and in which before treatment only temporary palliation had been expected may then be treated to their further advantage by vaginal or even intracervical applications of radium.

I believe that in these ways and by using it before treatment with radium, high voltage roentgen therapy enlarges tremendously the field of usefulness of radiation therapy in carcinoma of the uterine cervix and permits a broader approach as well as greater differentiation in the treatment of individual cases. I do not believe that it is possible to do full justice to all the cases in a large clinic without the complete cooperation of a well organized roentgen department.

Under the present plan of treatment as outlined, complete primary healing is obtained in from four to eight weeks. If at the end of this time active disease is still evident in the cervix, it is doubtful whether the patient will do well under radiation therapy.

Table 4.—*Adenocarcinoma of Cervix from 1918 to 1930, Inclusive*

	Total	Per Cent	Alive Jan. 1, 1931	Duration of Life	Average
Early................	5	25	5	1 to 10 yrs.	3.6 yrs.
Borderline..........	6		4	1 to 12 yrs.	4.9 yrs.
Advanced..........	13	75	8	1½ to 10 yrs.	4 yrs.
Palliative..........	19		0	3 to 36 mos.	12.5 mos.

There is a general belief, judging from the opinions expressed by various writers, that primary adenocarcinoma of the cervix is quite radioresistant and therefore offers a bad prognosis. In a recent article reviewing all the cases of carcinoma of the cervix observed at the gynecologic clinic of the University of Freiburg from 1915 to 1925, Keller[5] concludes that adenocarcinoma of the cervix is rather rare. He states that the incidence was 2 per cent in their clinic and in no case was there a permanent cure, the average duration of life being 15.4 months.

It is interesting to review the end-results in our cases of adenocarcinoma, forty-three in number, or 2.7 per cent of the total series. The incidence is rare, as already noted. Clinically subdivided, there were five early, six borderline, thirteen advanced and nineteen very advanced cases. One notes that there are eleven favorable cases, or 25 per cent, and 32 unfavorable cases, or 75 per cent. These figures correspond exactly with those obtained for the whole group of cervix cases (table 4).

However among the early cases all the patients are alive, one of them for ten years, but this patient for the past year has had symptoms due to active disease about the vaginal tube and in the parametrium. Two patients are living and well, each for three years, and two patients for one year each. Of the six borderline patients, four are alive and well, one each for one year, three years, five years and twelve years, two are dead, one nine months after the radiation therapy but as a result of complications following a Wertheim hysterectomy; the other lived seven and one-half years after her treatment but died from active recurrence of cancer in the pelvis.

In the advanced group, none of the patients died in less than two years; one lived six years and finally died from cancer. Eight of the thirteen patients in this group are still alive and well for periods varying from one and one-half to ten years.

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[4] Healy, W. P., and Cutler, Max: Am. J. Obst. & Gynec. **19**: 457 (April) 1930.

[5] Keller, F.: Die Prognose des Adenokarzinoms des Collum uteri bei Strahlenbehandlung, Strahlentherapie **37**: 349-353, 1930.

THE RECOGNITION OF CANCER OF THE UTERUS IN ITS EARLIER STAGES *

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ST. LOUIS

By far the greatest percentage of cases of cancer of the cervix uteri is diagnosed only when the disease is already more or less far advanced. Even in the so-called early cases, the pathologic process is quite well established and has made some inroads. The consensus is that the outlook for the patient improves, the earlier the stage in which the cancer is discovered. One must try, therefore, to detect cancer at a still earlier, in fact, at its earliest stage, and, if possible, go even beyond this to the precancerous condition which may give rise to malignant degeneration. Of such precancerous conditions which are potentially dangerous, several are known; for instance, cervical tears, erosions, eversions and leukoplakias. The last named condition, although its relation to cancer of the cervix has been known through von Franqué and others for more than thirty years, has received far too little attention on the part of the profession, probably because it was difficult to see these leukoplakias.

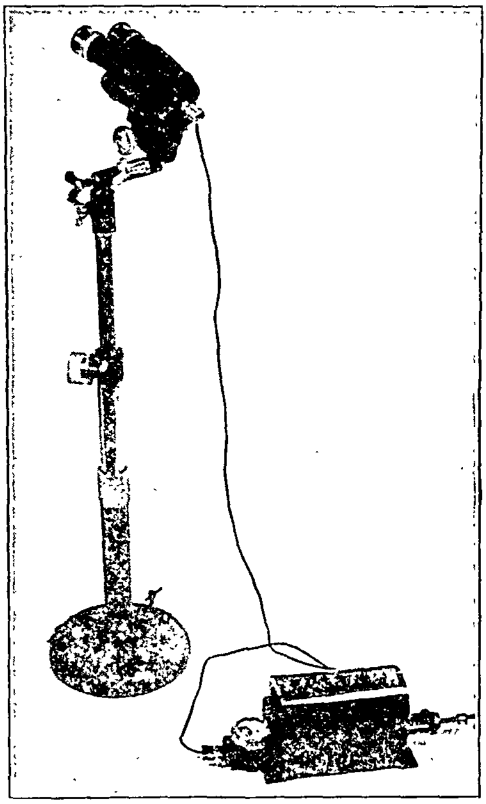

Fig. 1.—The colposcope.

A leukoplakia is a disorder of certain mucous membranes and is characterized by an increased formation of keratin in the superficial layers of the squamous epithelium and a marked hyperplasia of all other constituents of the mucous membranes until the latter closely resembles the epidermis in microscopic appearance. These changes result in the production of bluish, pearly or grayish white plaques, which are either level with the surrounding mucosa or slightly raised if the hyperplastic process has been excessive. Leukoplakia is most often found on the oral and vulvar mucosa, but also, though less frequently, in higher parts of the vagina and on the cervix.[1]

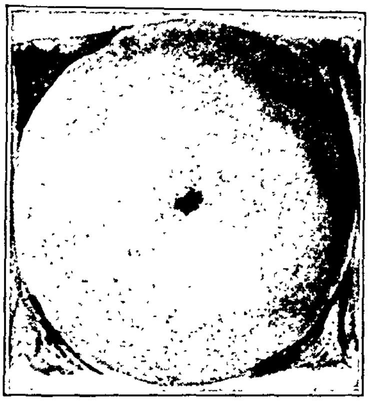

Fig. 2.—Virgin portio.

THE COLPOSCOPE

In this paper I wish to call attention to an appliance designed by Hinselmann of Germany which enables one to inspect the cervix more thoroughly than has been possible heretofore and to detect even slight alterations which otherwise would remain undiscovered. This apparatus, which is called the colposcope by its originator, consists essentially of a pair of binoculars mounted on an adjustable upright (fig. 1).[2] These binoculars have a focal range of about 2 feet and are equipped with several sets of lenses that magnify the object from 10 to 30 times. The binoculars carry in front a small electric bulb, which projects a beam of intense light and is connected by way of a rheostat with the nearest electric socket; when the cervix is exposed in a speculum, the surface of the vaginal portion can be studied carefully with satisfactory illumination and the magnification renders even the most minute lesions visible.

With this instrument Hinselmann has examined all his patients in a routine manner and discovered an unexpectedly great frequency of leukoplakias on the cervix, namely, 1 out of every 114 patients examined. In fact, he has found perfectly normal conditions of the

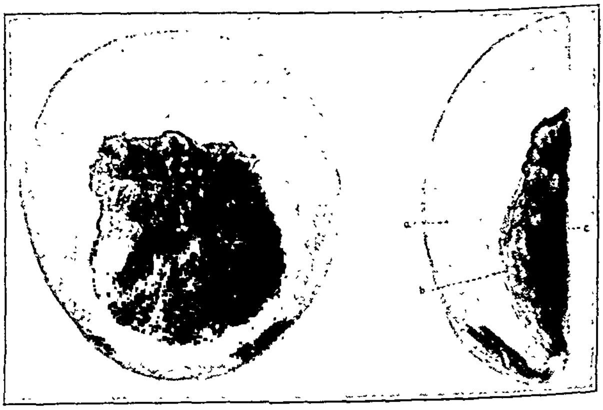

Fig. 3.—Congenital ectropium. Right, ectropium with beginning transformation zone: *a*, normal portio; *b*, transition region; *c*, ectropium.

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* From the Department of Gynecology and Obstetrics, St. Louis University School of Medicine, and the Barnard Free Skin and Cancer Hospital.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Gellhorn: Nelson's Loose Leaf Surgery, chap. IV, Syphilis in Women.

2. Hinselmann, H.: Stoeckel's Handbuch der Gynäkologie 6; Monatschr. f. Geburtsh. u. Gynäk., 1928; Arch. f. Gynäk., 1928; Wien. klin. Wchnschr., 1928; München. med. Wchnschr., 1926; Zentralbl. f. Gynäk., 1928; Halban-Seitz, 1927; Zentralbl. f. Gynäk., 1927; München. med. Wchnschr., 1928.

carcinoma. The cells are no longer regular in outline. Here and there the basal layer is broken through and solid columns of cells extend into the underlying tissue and, by forming branches, show invasive qualities. In places, masses of cells seem to lie isolated in the stroma without apparent connection with the mother epithelium. The proliferating cells exhibit large numbers of mitotic figures and stain very deeply.

REPORT OF CASE

The actual transition into carcinoma could be well observed in a case of leukoplakia which was discovered by means of the colposcope in the service of Dr. F. J. Taussig at the Barnard Free Skin and Cancer Hospital:

A woman, aged 38, the mother of three children, came to the dispensary complaining of vague pains in the lower part of the pelvis and a yellowish vaginal discharge. The cervix felt slightly thickened and somewhat nodular, especially in the posterior lip. The uterus was small, retroverted and freely movable. Both adnexal regions were normal. The colposcopic examination revealed a red granular area on the anterior lip, extending a trifle to the posterior lip on the right side. Near the left upper margin of the erosion a small white, somewhat triangular area with the largest diameter of about 4 mm. could clearly be seen. For purposes of microscopic study the cervix was amputated, and figure 12 shows the vaginal portion with the erosion and leukoplakia at considerable magnification. The histologic observations are represented in figures 13 and 14. Within the leukoplakic area the hyperkeratosis of the superficial cells was very marked. The basal layer was hyperplastic. The underlying stroma was infiltrated with round cells and at one point was invaded by a mass of cells exhibiting hyperchromatism and mitoses which had broken through the basal layer. The histopathologic picture was that of an advanced leukoplakia and a beginning squamous cell carcinoma (grade I).

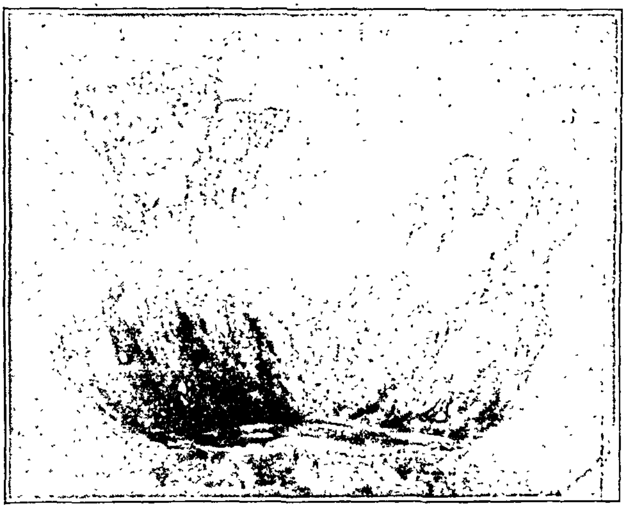

Fig. 7.—Leukoplakia of the portio.

This case, then, represents an instance in which an extremely early stage of malignant degeneration was recognized by means of the colposcope, at a time when neither symptoms nor the usual clinical examination could possibly have created a suspicion of the existing pathologic condition. In so early a phase of the disease, cancer of the cervix should theoretically be eradicable with ease and with every promise of permanent cure. Von Franqué has reported six cases of leukoplakia that had been followed for a number of years. In two the cervix had been amputated, and no further disturbance developed. The other four patients were left untreated, and all developed squamous cell carcinoma at a later date. Our patient, unfortunately, eluded further observation, and it is impossible to gage the permanent benefit of the amputation of the cervix. In further cases of this kind we shall prefer hysterectomy or possibly electrocoagulation of the cervix.

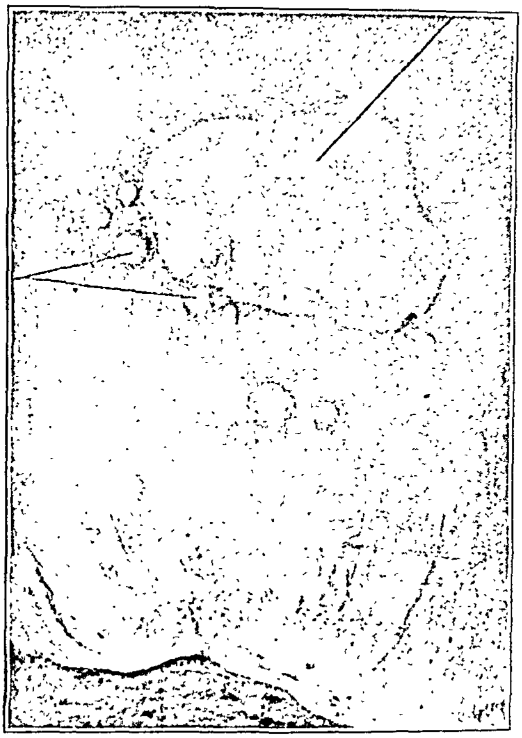

Fig. 8.—Leukoplakia of the portio.

SUMMARY

The importance of timely recognition and the removal of precancerous lesions in relation to malignant growths of the cervix uteri is generally accepted. Among these precancerous lesions, however, leukoplakia of the cervix has not yet received the widespread attention it deserves. This has been due to a large extent to the fact that leukoplakia easily escapes inspection with the naked eye. Hinselmann has designed an apparatus called the colposcope, which permits of ready detection of even the slightest alterations of the vaginal portion and in a large number of publications he has added extensively to our knowledge and appreciation of the nature and significance of leukoplakias. His contentions

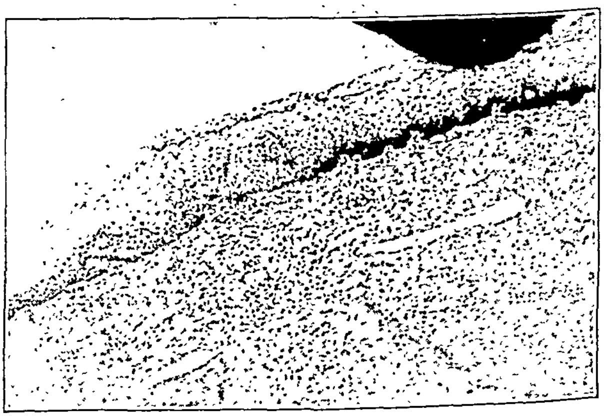

Fig. 9.—Leukoplakia, grade 1.

finally operation was abandoned in favor of irradiation. We believe that sufficient data have accumulated to show that irradiation offers at least as good results as operation in the treatment of cervical carcinoma, with less suffering and with certainly great economic saving. Therefore, we believe that cervical carcinoma no longer belongs in the realm of surgery but has passed over into that of irradiation.

Dr. Brooke M. Anspach, Philadelphia: In a series of five-year cases recently reported from our service in the gynecologic ward of the Jefferson Hospital, only 5 per cent were considered to be in the operable stage. In the early stage of cancer of the cervix the prognosis with irradiation is so good that prompt diagnosis becomes a matter of outstanding importance. There is a definite proportion of cases in which even the most observing woman will be unaware that she needs attention. This fact throws a responsibility directly on the family physician and the obstetrician. Attention should be focused on the cervix after labor, and whatever damage has resulted should be corrected. All women approaching the menopause, whether they have symptoms or not, should be examined, and any obvious lesions of the cervix should be corrected. The physician who is aware of cervical disease in one of his patients should feel that it is his duty to acquaint her with the need of such treatment. In my experience the most reliable indication that suspected cervical areas are malignant has been a peculiar friability of the tissues, so that when they are touched with a small curet the tissue crumbles and comes away in fragments. When this friability does not exist, the lesion is rarely malignant, but one must depend on the microscope for a final decision. Whatever means are used for obtaining biopsy material, the area should be immediately cauterized. Manipulation should be made with gentleness and as little disturbance of the surrounding parts as possible. Inflammatory lesions of the cervix and vaginal vault in older women sometimes mimic this friability of malignant tissue, and these lesions must be carefully differentiated. So far as the early recognition of cancer of the fundus is concerned, it may truthfully be said that a diagnosis cannot be made without curettage. This procedure will often be done with a negative result, but it is so simple and so easily accomplished that it should never be delayed. Every part of the endometrial cavity must be reached, but with scrupulous care that the inner layers of the myometrium are not traumatized. Radium should be at hand for introduction in suspected cases and should be left in place until by some rapid method the curettings have been prepared and examined. The radium may then be removed when the lesion is benign, or left in place for its destructive effect when the lesion is malignant, hysterectomy to be performed in suitable cases from six to eight weeks later.

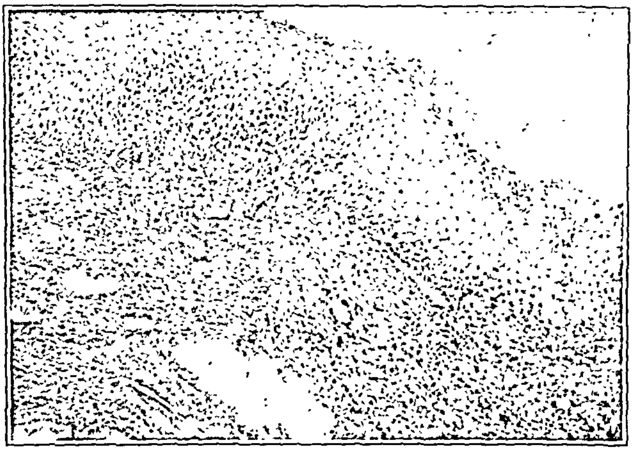

Fig. 13.—Leukoplakia with beginning squamous cell carcinoma.

Dr. M. Reese Cohen, Philadelphia: Hinselmann's colposcope has been used abroad and is reliable in the diagnosis of these conditions. However, I think that some method which could be put in the hands of the general practitioner would be acceptable, since he is responsible for the early diagnosis. Schiller has laid emphasis on the application of compound solution of iodine in the form of a tampon, a simple procedure which may be used by any one and which clearly brings out the demarcation between the normal and the pathologic tissue. Compound solution of iodine will stain the normal healthy tissue; the diseased tissue remains unstained. This gives the general practitioner a simple method of showing up the diseased tissue.

Dr. William P. Healy, New York: We use heavy doses of radium at the Memorial Hospital because we happen to have it—we have 8 Gm.—but it is entirely unnecessary for a man to have a large amount of radium. One hundred milligrams of radium is all that any person needs to own or have available if he wishes to treat cancer of the cervix. A man who is going to treat cancer of the cervix should own about 100 mg. of radium, should put his mind on the subject, study it, and become as conversant as possible with the features of the treatment, because it is a serious matter to use radium, and one must use it properly. One must always have x-rays available. One must also have the irradiation with radium done in collaboration with a competent roentgenologist who can give proper high voltage x-ray cycles. Retreatments are impossible for any recurrence at the site of the original tumor in or near the cervix. If one has properly irradiated that lesion with a competent, adequate dose in the beginning, and three or four months later finds a recurrence of the cancer, I believe, if the case is favorable for hysterectomy, that is, if it is an early or borderline case, that the patient will live more comfortably during the time she does live, if a panhysterectomy is done then. One must prove the recurrence with a biopsy. We never use the cautery on a cauliflower lesion or on any other cervical lesion unless we have first thoroughly irradiated the pelvic field and the cervix, at least with a high voltage x-ray cycle repeated twice, or with radium applied through the vagina. We think that it is unwise to tear and open up lymphatics in the endeavor to use a cautery, unless one has first rendered the cancer cells reasonably nonviable by the use of roentgen therapy plus radium.

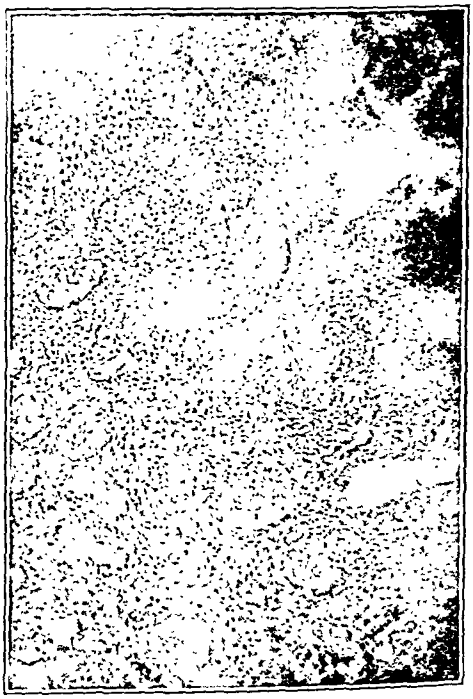

Fig. 14.—Leukoplakia with beginning squamous cell carcinoma.

Dr. Frederick V. Emmert, St. Louis: There is no doubt that we must go further in the recognition of precancerous lesions and discover just where they end and where carcinoma begins. Also, more study must be done on idiopathic leukoplakias to ascertain whether or not the syphilitic leukoplakias develop into cancer.

noted. Improvement began in each case soon after active treatment was instituted. Then there have been fastidious patients who would refuse to have an abscessed front tooth extracted, for instance, and in some of these no great difficulty was experienced in obtaining the result. On the other hand, patients have failed to improve under treatment satisfactorily until some focus of infection was found and eradicated. From this discussion it is difficult to state exactly the part played by chronic infection in cases of toxic goiter and hyperthyroidism.

INDICATIONS FOR RADIATION THERAPY

Those of us who have had considerable experience in the management of hyperthyroidism and toxic goiter appreciate the fact that the diagnosis of this malady indicates at least a trial with radiation therapy, with one or both of the physical agents roentgen rays and radium. If the operator is competent, only rarely will anything else be necessary other than the indicated medical treatment. Associated medical measures, particularly in severe cases of toxicity, are very important, no matter what form of specific treatment is prescribed. Radiation therapy is the only method of radical treatment that can be safely carried out in cases showing great intoxication with a high metabolic rate or in those with a low metabolic rate that is rapidly rising.

CONTRAINDICATIONS TO RADIATION THERAPY

A large tumor that is showing distinct signs of pressure is an indication for surgical removal. This will promptly relieve the pressure symptoms and, if too little of the gland is removed to produce normality from the symptomatic and basal metabolic rate standpoints, radiation therapy can be expected to perfect conditions if used postoperatively. On the other hand, in such a case, if there is evidence of great toxicity, radiation therapy if used preoperatively will reduce the operative mortality.

Some one has stated that radiation therapy is followed by dense adhesions which increase the difficulty of surgical removal, should this prove necessary. In reply to a letter touching on this question, Dr. Crile says: "Regarding your inquiry concerning the irradiation of thyroid cases, I have frequently operated on patients who have had long continued treatment and have noted that these patients, if the treatment has been long enough, may leave adhesions which are somewhat difficult to dissect. The ordinary case, however, which has had x-ray treatment shows very little change as compared with other glands. As you say, it might also be due to thyroiditis. A great many of these cases also have hyperplastic glands, and these cases, even without any treatment, have been very difficult to dissect out." Dr. Rogers of New York City received a like questionnaire and replied "I often have these cases x-rayed before and after operation and have never found the operative difficulties increased." To me the statements of these two authorities are so clear and to the point regarding this question that further discussion is unnecessary.

Another objection to the irradiation of these patients is the danger of producing the opposite condition, hypothyroidism. Of course, we know that there is little or no danger of such an accident. No normal thyroid tissue can be destroyed by any such dosage as is employed in the treatment of this malady. If these patients are seen frequently and a careful examination is made before each treatment, together with repeated metabolic estimations, the danger of producing hypothyroidism can be forgotten.

Therefore it appears that those patients who present severe pressure symptoms with large tumors, those who need quick relief from pressure, are the ones who should have surgical intervention. Later, if toxicity still exists, radiation therapy can be added to perfect conditions. Also, those who fail to get relief after properly applied radiation therapy should be referred for surgical treatment.

TECHNIC FOR ROENTGEN IRRADIATION

The vast majority of cases of toxic goiter and hyperthyroidism are probably best treated with the roentgen rays. These are applied at two separate sittings, with one day of rest between. Generally the first day's treatment consists of irradiation through one port of entry over the posterior surface of the neck and upper mediastinum. In my clinic this particular treatment is made easy for the patient by the use of a special treatment couch with the tube underneath the patient. The factors are 4 milliamperes, 180,000 volts, 0.5 mm. of zinc plus 3 mm. of aluminum as a filter, 50 cm. focus to skin distance and 200 r units dosage. The port of entry is 10 by 20 cm.

On the second day following this treatment, both the right and the left lobes of the thyroid are treated from the anterior surface of the neck at one sitting. For this purpose the usual overtable type of tube stand is used. From each port the rays are directed downward and inward, so that, after having passed through the thyroid, they thoroughly irradiate the upper mediastinum from the front. The factors for these treatments are 4 ma. 150,000 volts, 0.25 mm. of zinc plus 3 mm. of aluminum filter, 32 cm. focal skin distance and 200 r units dosage.

On completion of the second day's treatments, one complete series of treatments has been administered. The average case demands usually seven or eight such series of treatments, although occasionally one is forced to give additional treatment. The degree of toxicity in the individual case cannot be used to predict the amount of treatment necessary. For instance, one patient, with a larger tumor, a pulse of more than 160 per minute, and a basal metabolic rate above plus 80 per cent, after only four series of treatments had a pulse of 74, a basal metabolic rate of zero and no tumor.

TECHNIC FOR RADIUM TREATMENT

Radium is used in those patients who are unable to leave their beds because of the severe toxicity. The method consists in using 10 mg. tubes or needles in sufficient numbers to cover the tumor. They are applied in the form of a pack filtered by the needle wall, plus 1 mm. of brass at a distance of 2 cm. The distance between tubes is 1 cm. The time duration is up to sixteen hours, based on the interpretation of the individual indications. As soon as improvement warrants it, the patient is brought to the clinic and treated with roentgen rays, because such treatment can be executed more quickly.

Toxic adenomas are treated best, it is felt, with radium element needles inserted directly into the tumor. For this purpose, 5 mg. needles are used, each being placed 2 cm. from the other; that is, each 2 cm. of tumor tissue contains one radium element needle. In my experience, one such treatment is sufficient to remove the tumor, to remove all toxic symptoms and to produce a normal basal metabolic rate. Treatment by investigations of these strains led to the development of a culture medium which enabled us[4] to differentiate more readily Streptococcus epidemicus from other hemolytic streptococci. On this medium, Streptococcus epidemicus forms large flat wrinkled colonies, which in moist india ink preparations show encapsulated cocci. With the aid of this medium we[5] extended our bacteriologic studies of throat infections and found that this organism causes the sporadic form of sore throat as well as the striking milk borne epidemic type.

The epidemics reported in various sections, such as Wisconsin, New York, Massachusetts, Illinois and Oregon,[2] had no apparent relationship to one another. The intervals of reports of epidemics varied from several months to a year or more. It would seem most probable that septic sore throat occurs in sporadic form and, through the milker as a carrier or with active throat infection, a cow acquires mastitis which may lead to an explosive epidemic from the milk. The epidemic type is the exceptional or unique form of the disease. The disease in its epidemiology should resemble the other infectious diseases, such as scarlet fever and diphtheria.

Our purpose is to point out the etiologic importance and frequency of Streptococcus epidemicus in sporadic sore throat and to discuss the sequelae and the human carriers of Streptococcus epidemicus that may result from the sporadic form of the infection.

INCIDENCE OF SORE THROAT DUE TO STREPTOCOCCUS EPIDEMICUS

Ordinary sore throat or tonsillitis is endemic and is spread most probably by contact or droplet infection. The clinical observation is that of an exudate on the tonsils, associated with a variable degree of general symptoms and fever. In its manifestation the ordinary tonsillitis resembles the epidemic type, excepting perhaps for a large number of severe cases in the latter. However, severe toxic manifestations may also be observed independent of epidemics but only in a few instances. In our cases, cultures were made from patients with sore throat in whom the manifestations varied from soreness in the throat with slight fever to that of the severe type with a temperature of 107 F. and marked general symptoms. The hemolytic streptococcus appeared to be the outstanding cause of throat infections. Of 272 patients the streptococcus was recovered in large numbers and often in pure culture in 50 per cent. Hemolytic streptococci were obtained in pure state in a certain proportion of tonsillectomized persons who presented a clinical picture of pharyngitis, "cold" or "upper respiratory infection."

Of seventy-six strains of hemolytic streptococci isolated from acute throat infections, eighteen on the ascites blood agar yielded colonies like the Streptococcus epidemicus of epidemic sore throat. With Dr. Philip Rosenblum we determined the bacteriology in a series of children from 18 months to 12 years of age, acutely ill with sore throat. Of 102 cases, 59 yielded hemolytic streptococci, 9 of which were of the epidemicus type. In our first study[5] we obtained three in thirty cases between December, 1929, and April, 1930. We then noted the infrequent occurrence of streptococcus sore throat in the summer months of 1930. A few cases appeared in the fall, and a higher incidence occurred in the winter; but the greatest frequency was in the spring of 1931. This seasonal variation was noted in sore throat due either to ordinary hemolytic streptococci or to Streptococcus epidemicus and corresponded to the seasonal outbreaks of epidemic type in winter and in spring and to the seasonal curve of scarlet fever.

The sore throat due to Streptococcus epidemicus appeared in persons from 18 months to 45 years of age. Practically all the cases occurred independently of one another with the exception of one in which contact appeared to be a factor. The development of the sore throat in a single member of a family or of an institution excluded milk or other dairy products as the source of infection. Milk as a source was not probable, for the patients were consumers of the pasteurized product of the large companies.

CLINICAL MANIFESTATIONS

The sore throat affected persons regardless of the presence or absence of faucial tonsils, which, however, did influence the clinical picture. The infection was observed in patients with tonsils of varying size, in tonsillectomized persons and in a few with remnants of recurrent or residual lymphoid tissue in the throat.

In patients with tonsils the infection developed in a more severe form. In this group, however, mild symptoms were also noted. The severe forms were observed in late adolescense and in young adults. The onset was acute, often with a chill or chilliness and high fever (103 to 107 F.), rapid pulse with accompanying marked malaise, and muscle soreness. Early the throat became reddened and the tonsils large and edematous, although the complaint of sore throat at this time was not very marked. At this stage a pure culture of Streptococcus epidemicus may be obtained. In twelve hours or more a grayish white exudate appeared on the tonsillar surfaces, and the engorgement assumed a deeper red hue and swallowing now was very painful. The exudate, at first in spots, became confluent but as a rule could be readily removed. The glands at the angle of the inferior maxilla became distinctly enlarged and tender. The fever remained high and the pulse was rapid for from three to four days; then it gradually returned to normal within six to twelve days after onset. Weakness and prostration often persisted after the fever dropped. The blood count varied from 12,000 to 28,000, with an increase in the polymorphonuclear leukocytes. The urine often contained albumin and casts.

In milder cases the fever was slight or up to 102 F. The tonsillar reaction was not as marked in the severe form, although in several instances the tonsils were intensely reddened and the exudate profuse, while the general symptoms were mild. Cervical adenitis developed in many, regardless of the severity of other symptoms. In most of the mild and severe forms, Streptococcus epidemicus disappeared from the surface of the tonsils after the fifth day; in some patients the streptococci persisted in large numbers and became the source of complications.

The clinical picture in the tonsillectomized person was of great interest, resembling to some extent influenza. If cultures were not taken, the condition would not be recognized as septic sore throat. In an abrupt onset with chilliness, the temperature was often high (104 F.), accompanied by muscular soreness and marked prostration. The pulse, however, was rapid as a rule and not slow in proportion to the fever, as in influenza. The pharynx was reddened, and lymphoid coccus. At autopsy a thrombo-ulcerative endocarditis was found on the aortic valves.

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[4] Pilot, Isadore; Hallman, Blake; and Davis, D. J.: A Culture Medium for the Isolation of Streptococcus Epidemicus of Septic Sore Throat, J. A. M. A. **95**: 264 (July 26) 1930.

[5] Pilot, Isadore; and Davis, D. J.: Sporadic Septic Sore Throat Due to Streptococcus Epidemicus, J. Infect. Dis. **47**: 507-510 (Dec.) 1930.

In two patients, acute glomerulonephritis was the outstanding sequela. One of these, a young physician, was observed early with septic sore throat from which Streptococcus epidemicus was isolated in swab cultures. He had no tonsils, and the throat was markedly reddened. He apparently recovered completely from the acute angina. Three weeks later he complained of backache, and the urine on examination revealed albumin and red cells. His throat was again red and yielded a pure culture of Streptococcus epidemicus. Blood and urine cultures, however, did not contain the streptococcus. The other case developed two weeks after an acute onset in a child of 5 who gave positive cultures from the enlarged red tonsils. Otitis and cervical adenitis were also present. Both patients recovered in about four weeks.

A most interesting manifestation was the appearance of nodular lesions on the anterior surface of the legs. In their behavior they resembled erythema nodosum. The condition was observed in two young women, in one eleven days after the acute onset and in the other about four weeks later. In their throats Streptococcus epidemicus was still demonstrable. The throat of the first patient was devoid of tonsils, and the clinical onset of her illness was like that of influenza. In the second patient the skin lesions were associated with arthritic pains, which were not relieved until tonsillectomy was performed.

During the course of our studies of various purulent conditions due to Streptococcus epidemicus, we[8] recovered the organisms from three patients with empyema. The lesion had been apparently of several weeks' standing and the history of a typical pneumonia was lacking. A "cold" or bronchitis seemed to have been the initial infection two or more months before. In two of the patients, Streptococcus epidemicus was isolated from the throat and sputum. The exact source and mechanism of pulmonary complications were not clear, but it is probable that, as has been reported in epidemic sore throat, pleurisy may be a complication of the sporadic infection and may assume a purulent character.

CHRONIC STAGE (CARRIER STATE)

In a certain proportion of the patients, following either the primary acute or secondary acute stages, the tonsils remained enlarged, moderately red, and, on examination in some, purulent exudate was expressed from the crypts. The cultures often revealed moderate numbers of Streptococcus epidemicus and these individuals were now to be considered carriers. The organism in a few of the tonsillectomized patients persisted for several weeks after the acute illness, sufficiently long to be the source of complications in the late secondary acute stage. On recovery, however, the tonsillectomized person did not become a carrier in the cases that we have thus far followed.

The carrier state is exceedingly important from the point of view of prevention of epidemic sore throat that may be traced from carriers among milkers or dairy workers. In routine cultures our studies[9] have shown four carriers among 500 persons. A further investigation revealed these organisms in a larger proportion (13 per cent) in the extirpated tonsils from persons most of whom had had previous sore throats. Several notable features characterized the chronic form of tonsillitis associated with Streptococcus epidemicus. Soreness often was absent; cervical adenitis was common; exacerbations of infection with increased redness of the throat and mild fever occasionally occurred. In a considerable number of patients, pains in joints and actual arthritis existed. The tonsils in these patients were obviously the responsible focus of infection. This assumption was further supported by the effect of the removal of their tonsils, which led to complete relief of the arthritic symptoms in most of the patients. The excision of the tonsils appeared to be the most effective way of terminating the carrier state. Within two weeks Streptococcus epidemicus disappeared, and the improvement in the joint symptoms rapidly followed.[10] In the histologic study of tonsils harboring these bacteria, a chronic inflammation was always demonstrable. Pus cells and bacteria frequently could be seen in the crypts. The changes in the tonsils of patients with arthritis did not differ markedly from the tonsils examined from patients without arthritis. It would appear that, although a focus of infection as in the tonsil was necessary, the development of the arthralgia or arthritis was due to hypersensitiveness of the tissues to the streptococcus. The tonsils could be referred to not only as the infectious focus but also as the source of sensitizing streptococci. The skin reaction with dilutions of Streptococcus epidemicus toxin from epidemic sore throat did not give constant reactions in arthritic patients or in carriers. However, these patients often gave marked reactions to intradermal injections of vaccines. In six patients, blood cultures made during the febrile stage with the use of the Clawson[11] technic did not yield Streptococcus epidemicus during thirty days' incubation. Such observations speak for either minute numbers of streptococci or for toxins localizing in the joints.

DIAGNOSIS

It is difficult to determine, without bacteriologic methods, sporadic tonsillitis due to Streptococcus epidemicus. Severe edema and redness, with very high fever, and early adenitis are usually due to Streptococcus epidemicus, although recently in one patient we observed such symptoms due to the pneumococcus. We shall not discuss the differentiation from diphtheria and Vincent's angina. Hemolytic streptococcus was found the most common cause of sore throat; Staphylococcus aureus was obtained in pure culture in three and the pneumococcus in two patients. In patients in whom there is greater tendency to complications, especially meningitis and the so-called primary peritonitis, the infection may be due to Streptococcus epidemicus or to the pneumococcus, illustrating a striking similarity in the behavior of these encapsulated cocci.

PROPHYLAXIS

Although the sporadic form appears to be followed by infrequent contact cases, it would be wise to isolate the patient. Particularly important are the measures with patients who may be connected with the dairy industry. Milkers or other workers on the farm, as active cases or as carriers, may be especially dangerous in handling cows and causing a mastitis. Such carriers should be sent away and subjected to a tonsillectomy if the organisms persist in the throat. In the general popula-

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[8] Pilot, Isadore; and Davis, D. J.: Cellulitis and Abscess Due to Streptococcus Epidemicus, J. Infect. Dis. **48**: 505; 509 (May) 1931.

[9] Pilot, Isadore; Hallman, B., and Davis, D. J.: Human Carriers of Streptococcus Epidemicus, J. Infect. Dis. **47**: 503-508 (Dec.) 1930.

[10] Pilot, Isadore; and Davis, D. J.: Tonsillectomy in Carriers of Streptococcus Epidemicus, J. Infect. Dis. **48**: 501-505 (May) 1931.

[11] Clawson, B. J.: Studies on the Etiology of Rheumatic Fever, J. Infect. Dis. **36**: 444 (May) 1925.

6. The complications and sequelae were due to Streptococcus epidemicus. The appearance and disappearance of these organisms in the throat frequently could be demonstrated with the development and termination of the complications.

7. Streptococcus epidemicus constitutes probably a group among the hemolytic streptococci. Its capsule and large colony formation appears to be identified with an aggressiveness greater than that of ordinary hemolytic streptococci and with a peculiar tendency to cause fatal peritonitis and meningitis. Its exact status remains unsettled.

8. Streptococcus epidemicus produces toxin which gives skin reactions in man specifically different from toxin of streptococci of scarlet fever. Injected into animals, the toxin leads to the formation of an antiserum with neutralizing properties.

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ABSTRACT OF DISCUSSION

Dr. Anna W. Williams, New York: In the New York City Health Department, we have been interested in the classification of these different types of streptococci and in their relationship to beta hemolytic streptococci in general. We have been using intensively the absorption of agglutinins test in these studies. We have several strains designated Streptococcus epidemicus from the older epidemics, among these the historic strain of Davis and a number of strains from the large epidemics that occurred in Massachusetts in 1928 as well as several of our own from scattered cases of "septic sore throat." We have found so far that the Davis strain and two or three others from the older epidemics fall into one group by the absorption of the agglutinins test. This we have called epidemicus type I. We found another agglutinative group from some of the Massachusetts strains. This we have called epidemicus type II. We have discovered lately that the strains of this type II are by absorption a subgroup of our smallest erysipelas group E type II. We have also found other strains belonging to this subgroup, so now our epidemicus type II group (Erysipelas subgroup II) is composed of a large number of strains. These strains as well as those from erysipelas all show growth characteristics similar to those described as belonging to the epidemics. The question as to the worth of these cultural characteristics as well as that of a capsular space, in determining species classification, is unsettled. This is an interesting and important group from the standpoint of epidemiology, and we believe that the absorption of the agglutination test of all these strains must be studied with complete cross absorptions and full controls before we can arrive at their definite classification. The exotoxins we have tested from these strains act precisely as do our exotoxins of beta hemolytic streptococci from other sources; that is, in some people they are fully neutralized by the serum stimulated by the exotoxin from any other strain. On the contrary, the endotoxins, which are the chief cause of the lesions in septic sore throat, are more specific and correspond to the agglutinative type of the invading strain.

Dr. A. C. Ivy, Chicago: I should like to ask the authors whether, when tonsillectomy is performed in these carriers, the postoperative course is complicated. I should also like to ask whether they have seen any temporary increase in blood pressure as sometimes encountered in influenza.

Dr. Isadore Pilot, Chicago: With reference to the absorption agglutination test, at first we had distinct, specific results with the epidemic strains. We have obtained such results with those from the Lee epidemic (1928), a strain from 1911 and others. Some of our sporadic strains have not fallen into a group. Whether they are a distinct, specific group is still an open question. With reference to capsules, we had some interesting discussion. We have observed encapsulated streptococci that do not give cultural characteristics of Streptococcus epidemicus. We therefore emphasize primarily the cultural characteristics, the production of the large colony which becomes wrinkled. The capsules are largely confirmatory evidence. One of the most striking phenomena, I think, is that Dr. Davis's strain of 1911 had lost its cultural characteristics and with mouse passage it now grows just as typical as the fresh strains from the New York and Baraboo epidemics. With reference to tonsillectomy with this organism or any particular streptococcus in the throat, it seems to most physicians remarkable that there are no complications when the tonsils are taken out. Some older studies showed that practically 100 per cent of tonsils contain hemolytic streptococci. Yet, from the enormous number of tonsillectomies that are done, very few reactions are seen. It is probably due to the fact the tonsillectomy, as most clinicians know, must be performed when there is no active, acute infection. We always insist that at least five and preferably six weeks or more must elapse after any acute manifestation in the throat before we advise tonsillectomy. With reference to the question on blood pressure, by Dr. Ivy, we have not made any observations.

THE MANAGEMENT OF ACUTE BRAIN INJURIES

WITH ESPECIAL REFERENCE TO THE INDICATIONS FOR OPERATION *

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The rapidly increasing number of brain injuries constitutes a problem of great interest to nearly all departments of clinical medicine. If one may judge from the vast literature on the subject, there still remains a wide difference of opinion as to the management of these cases. It has been customary in recent articles on the subject of head injuries to begin the discussion by stressing the importance of the brain injury rather than that of the associated fracture of the skull. It is obvious that injury to the brain is the important lesion in such cases, and the studies of the patient should be made with this idea in view. Fracture of the skull, however, should not be ignored, and the location and type of fracture often give definite indications of the site of the important intracranial lesion. The admitted necessity of operating on compound or depressed fracture of the vault as early as the patient's condition permits, the contrecoup brain injury so often found in occipital fractures, the possibility of middle meningeal hemorrhage in fractures of the temporal region, and the occasional complication of infection in fractures through accessory nasal sinuses all combine to keep alive interest in the subject of the fracture itself in order that there may be a better understanding of the more important intracranial damage.

It is my purpose in this paper to discuss certain observations made on a series of 596 patients who have received treatment in the Hospital Division of the Medical College of Virginia during a period of five years, closing Jan. 1, 1929. The methods employed in the treatment of this group will be briefly reviewed. Of these 596 patients, 453 had head injuries of sufficient severity to produce a demonstrable fracture of the skull or unconsciousness, or both. There were 275 demonstrated fractures of the skull in this series. Of the group of 596, 143 are excluded from consideration here because of the fact that, although they had head injuries requiring a stay in the hospital, they were injuries of a mild type. In the group of 453 under

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* From the Department of Neurological Surgery, Medical College of Virginia.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

most of the fluid that one obtains at lumbar puncture comes from the ventricles and large cisterns. Fluid from these sources, if not withdrawn, might serve a useful purpose in diluting small collections of blood and facilitating the disappearance of this blood from the fluid spaces. In some cases I have seen the fluid become more bloody after the first spinal puncture, and the question was raised as to whether the sudden lowering of pressure did not precipitate a fresh hemorrhage.

Extradural hemorrhage still remains a problem in intracranial trauma. Frazier[4] thinks that less than 50 per cent of the cases are recognized, and Moody[5] found at autopsy 100 extradural hemorrhages, of which number only 37 were recognized clinically. In the 504 skull fractures which Le Count and Apfelbach reported, there were 104 extradural hemorrhages, weighing from 20 to 246 Gm. There can be no doubt that both extradural and subdural hemorrhages are much more frequent than is generally believed, and the mortality of intracranial clots of all kinds continues to be high. When a patient dies within the first five or six hours after injury, the fatality may generally be regarded as having been inevitable, except in a few cases of extradural hemorrhage. When, however, death occurs after recovery from shock, the question must always be raised as to whether the patient died as a result of increased intracranial pressure and whether or not he received adequate treatment for this condition. The death of the patient after recovery from shock may be caused by unavoidable infection, extensive cerebral lacerations or uncontrolled intracranial pressure.

The majority of cases of brain injury do not show either subdural clots, extradural hemorrhage, or depressed or compound fractures, but they do show a rise of intracranial pressure. Relief of intracranial pressure by decompressive operations has fallen into considerable disfavor in recent years, and, as a substitute, spinal puncture, hypertonic solutions and dehydration are being employed. We have used spinal puncture guardedly in the examination of most of the patients with acute brain injury severe enough to require treatment directed to the intracranial condition. The proper employment of spinal puncture gives added information, not supplied by clinical examination, as to the degree of intracranial pressure. There is danger in the use of spinal puncture when there is a rapidly developing compression, such as is produced by extradural hemorrhage. The patient should be studied carefully before the spinal puncture is done, and I believe that it is unwise to drain spinal fluid to the last drop even though the fluid is very bloody. If the pressure is elevated, we have followed the rule of reducing it to about half of its original level. Some patients presenting headache, irritability, and bloody or xanthochromic spinal fluid persisting for some days will be greatly relieved by single or repeated spinal punctures. As a rule, however, I consider spinal puncture of more value as a test for pressure than as a therapeutic measure.

Hypertonic solutions will undoubtedly reduce intracranial pressure, and, if administered in combination with dehydrating agents and purgatives, fluids will naturally be drawn from the body. In cases with moderate pressure, this combination of palliative measures is usually sufficient to lower the pressure, but in those patients with life at stake it is difficult to say whether the end-results would not be about the same if these measures were omitted. The effect of hypertonic dextrose is temporary, and, if active dehydration is employed in order to maintain the effects of the hypertonic dextrose, one may wonder whether a well conducted subtemporal decompression under local anesthesia would not give the patient greater and more lasting benefit. It has been thought by some that spinal fluid is produced in larger quantities after a brain injury, but so far as I know it has never been asserted that the repeated removal of spinal fluid at lumbar puncture and the administration of hypertonic solutions and magnesium sulphate will maintain continuously a lowered pressure. On the other hand, there have been a few cases in the series in which dehydration appeared to be distinctly harmful and recognized improvement of the patient's condition took place on discontinuance of the treatment. The harmful effect of too energetic dehydration or of misapplied dehydration does not, to my mind, indicate that that measure is not useful in many cases but that it should be used with care and with the idea in mind that it may be inadequate to control pressure.

There is a general agreement as to the treatment of head injuries when certain results are produced, such as scalp lacerations, compound or depressed fractures and gross intracranial clots. Scalp lacerations are usually disinfected and excised as soon as the patient's condition allows this simple procedure. The proper treatment of scalp lacerations, however, is too often neglected, and troublesome infections are frequently found after such lacerations.

The treatment of depressed fractures of the vault which have lacerations of the dura and underlying brain should be extended to include measures which limit the amount of scar formation in the brain tissue. This is very important if there is a laceration of the motor cortex. Excision of the contused brain, with careful control of bleeding and repair of the dura, is probably of much greater importance in the management of these cases than the elevation of the depressed bone. Compound fracture, particularly of the frontal fossa, with a cerebrospinal fluid leak should be operated on as soon as the patient has recovered from shock, and the rent in the dura should be repaired with a fascial strip. The difficulty of recognizing the presence of a subdural clot in severely injured patients is generally appreciated. These patients have usually received extensive lacerations of the brain tissue and are frequently profoundly unconscious from the time of injury. We have found the study of the pupils to be of invaluable help in localizing clots, both of the subdural and of the extradural types, but little information has been obtained, in the study of our cases, by examination of the eyegrounds in the early stages of the injury. We have found a dilated and fixed pupil of greater significance in the localization of the clot than hemiplegia, and in cases presenting a dilated pupil and hemiplegia on the same side the clot is usually found on the side of the dilated pupil. Care is necessary in the interpretation of the pupillary changes, however, in some cases, if the patient has received a fracture of the base (which may be indicated by ecchymosis around the eye and bleeding from the nose). In such a case the third nerve may have been directly injured and, consequently, the dilatation of the pupil would not be significant as to the presence or location of an intracranial clot.

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4. Frazier, C. H.: Surgical Management of Cerebral Trauma, Pennsylvania M. J. **33:** 466-470 (April) 1930.

5. Moody, W. B.: Traumatic Fracture of the Cranial Bones, J. A. M. A. **74:** 511 (Feb. 21) 1920.

figures, that more of those patients in whom a decompression has been performed have been handicapped later on by unfortunate after-effects than in the group in which operation was avoided; but in this connection it must be remembered that only the more seriously injured patients were operated on.

Dr. **Max Peet**, Ann Arbor, Mich.: I agree with Dr. Coleman on practically every point he has made and differ only on the advisability of lumbar puncture and the relief of intracranial pressure by the use of hypertonic solutions rather than by subtemporal decompression. I have had several opportunities to note the improvement following the administration of hypertonic solutions in patients who had already had unilateral or bilateral subtemporal decompressions. I admit that that is not an absolute comparative series, but to have an individual who has had the operation and still remains in deep coma with a slow pulse and respirations return to consciousness, perhaps in fifteen, twenty or twenty-five minutes after the administration of dextrose solution and have it happen sufficiently often so that it cannot be just a coincidence, convinces me that the routine administration of hypertonic solution of dextrose is really of greater decompressive action than subtemporal decompression. *In adults I recommend 100 cc. of 50 per cent solution of dextrose intravenously.* I believe that in the majority of cases a subtemporal decompression relieves pressure over only a comparatively limited area, and certainly many patients have to have a bilateral subtemporal decompression. It is well known that patients can have an increased intracranial pressure, in fact a fatal increase in pressure, and still be in profound shock. I have found in such cases that the administration of hypertonic solution of dextrose is not only beneficial in decreasing the intracranial pressure but is also of great value in combating the condition of shock. I hesitate always on lumbar puncture because of the possibility that I may be increasing a hemorrhage which has already taken place. On the other hand, I believe that there are times when lumbar puncture is a life-saving measure. I particularly refer to the patient that is seen immediately after an accident or is brought in within a few minutes and in whom there is every indication of an exceedingly rapid increase in intracranial pressure, with a possibility of early death. Although obviously there may be hemorrhage taking place, I believe that lumbar puncture is definitely indicated, for the following reason: It is known that the medulla can stand a certain amount of pressure, at a given time. That pressure can be increased enormously if the increase is gradual, but the medulla can stand only a little pressure if that pressure is applied rapidly.

Dr. **Harry Mock**, Chicago: Only 13 of 100 patients studied required operation. Of that 13, 6 required it because of definitely depressed skull fracture, and 3 required it because of middle meningeal hemorrhage, leaving 4 in the questionable group, and of the 4 cases, 2 were early decompressions which I did because I thought the patients were going to die and I might save them. They died just the same. I think that, as a group, surgeons should get together on this subject, and in trying to carry out that idea I have the names of over 100 men from all parts of the country who are willing to report their skull fractures next year on a uniform card, and I hope to come back with 500 or 1,000 cases next year for the exhibit, telling just how the patients were treated. From statistics gathered from these cases, I shall endeavor to ascertain whether dextrose solution or dehydration is the ideal, whether lumbar puncture is justified or not justified, or whether one must go back to the decompression period again. A study of the statistics gathered from the literature covering 20,000 cases since 1900 shows that the highest mortality rate in skull fractures was in that second decade, 1910 to 1920, when most of the articles were lauding subtemporal decompressions. Since 1920 there has been a definite decrease from 49 per cent gross mortality down to 25 per cent gross mortality, and there has been a definite reduction from 26.6 per cent operative procedure to 10.5 per cent operative procedure in skull fractures. So it seems to me that with dehydration and lumbar puncture the percentage of operations has been reduced and the reduction has been accompanied by this very definite decrease in the mortality rate.

Dr. **Claude C. Coleman**, Richmond, Va.: The discussion shows that there is little important difference of opinion as to the management of these cases. I agree with what Dr. Bagley has to say about the benefit of removing bloody fluid in certain cases. It is extremely difficult to get statistics of any value either as to mortality or as to the type of lesion in traumatic head cases. No two cases are alike. One cannot accurately determine the value of any particular method of treatment, because different methods of treatment are not used on the same patient. If reliance is placed on subtemporal decompression in a particular case, one cannot say that he might not have been benefited by hypertonic solution of dextrose and dehydration with spinal puncture. This is one of the difficulties that I have found in trying to get standardization of treatment. In reference to the objection made by Dr. Grant as to a subtemporal opening in the skull, I doubt whether this should be given any great weight. Of course, a decompression does leave a permanent defect in the skull, but if these patients have neuroses following the injury, they are more likely to come from the damage to the brain than from the opening in the skull. As to the localized effect of decompression brought up by Dr. Peet, I think that a subtemporal decompression, whether done for tumor or for trauma, will affect the general intracranial pressure, and if in doing a decompression for trauma one finds a clot, this can be removed. If a clot is not found, I believe that a classic subtemporal decompression, usually on the right side, will lower the general intracranial pressure. In the 453 cases reported in this paper, all with brain injuries, including the severest types in which death occurred within a few minutes after injury, there was a mortality of 18.5 per cent. The cases have been analyzed in order to call attention to the views that I hold, that in the severe types of pressure one must not only utilize the palliative measures of hypertonic solutions and dehydration with spinal puncture in properly selected cases but also give the patient additional help in a small group of cases, by a subtemporal decompression.

THE DUCTLESS GLANDS AS THEY APPERTAIN TO EYE DISEASES AND TO SURGERY *

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CLEVELAND

Any one associated with a medical organization that has much to do with people who have endocrine disturbances will be impressed by the large number of such individuals who present ocular changes. In the study of these cases it becomes of increasing interest to find that these pathologic changes in the eyes not only can but must be due to the deficiencies of the internal secreting glands.

In only a few cases is it possible to identify one gland as responsible for the ocular condition, for usually more than one is causing trouble. Until better methods of study of the endocrine glands are introduced, and better surgical operations are performed on those which are at fault, disorders of the thyroid and of the pituitary will continue to be considered as the principal causes of diseases of the eye which are amenable to surgery.

In this connection, I wish to record the recent work of Dr. G. W. Crile on the suprarenals. There is a group of cases the symptoms of which simulate those of hyperthyroidism, in which the condition is frequently called neurasthenia or neurocirculatory asthenia. In these cases the eyes may present all the changes that are associated with hyperthyroidism except exophthalmos. Such cases appear to be benefited by denervation of the suprarenals. (As a matter of interest, it may paralysis, such as that of the external rectus muscles and most frequently the right external rectus. The superior recti, especially the right superior rectus, are most frequently involved. The muscle changes do not clear up to any great extent after operation and may require further operative treatment later on. In six cases in which a squint operation had been performed, after a long period of time the eyes were found to be in maximum divergence or convergence, the opposite of the condition for which operation had been performed.

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* From the Cleveland Clinic.

* Read before the Section on Ophthalmology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

Weakness of accommodation convergence is the most common muscle disturbance and persists postoperatively, frequently delaying the return of the patient to normal and preventing his assuming his previous occupation. Muscle exercises and prisms for close work are sometimes of some benefit for this condition.

In our series of cases of hyperthyroidism there were eleven cases of increased intra-ocular tension, in none of which were any fundus changes of glaucoma present and in none of which were there any field changes or loss of vision. All but one of these patients returned to normal immediately after operation. This one case was that of a woman with myopia with a persistent tension in excess of 30 (Schiötz). The condition was controlled by the use of physostigmine. In all of these cases a great degree of protrusion was present with severe toxicity; all the patients had severe headaches, which also disappeared postoperatively.

In an ever enlarging group of cases of weakness of accommodation convergence, rapid fatigue, increase in body weight and all other symptoms usually associated with a mild postepidemic encephalitis, a low basal metabolism is found ranging from minus 10 to minus 40. These individuals are all benefited by the administration of thyroid extract replacing the nux vomica and other stimulating tonics that were formerly used. Disturbances of the eye muscles are commonly associated with general disability, and the possibility that hypo-endocrinism with poor muscle balance is present must always be considered.

With the ever increasing number of thyroidectomies and also the number of severe cases in which surgery is always hazardous though necessary, there may be an involvement of the parathyroid glands—either by their accidental removal or by their involvement in the postoperative scar, or perhaps by the temporary cutting off of their blood supply. There is undoubtedly a group of cases in which tetany is present before operation—those cases in which the patient complains of transitory blurring of vision, or spasm of the ciliary muscle. A large percentage of these patients have refractive errors that have varied several diopters even after a recent examination. Our records show that in over 60 per cent of thyroid cases refractive errors were present for which new glasses had been prescribed three months prior to the necessary surgical operation.

Although routine examination in the following group of cases did not reveal preoperative changes in the lens, postoperatively eye changes occurred as follows: sudden and spasmodic blurring of vision, becoming more frequent in association with some photophobia and then occurring for longer periods and, in some instances, soon accompanied by a haziness of vision. Examination at this time revealed a deposit along the posterior cortex which was granular to flaky in character. This condition progressed and appeared to form spicule-like changes, all posterior, in part as if the lens were thrown in folds. The spasms were of longer duration and lasted from a few minutes to three or four hours. In cases of this type, changes in the lens may progress rapidly to the formation of a complete cataract in one month or they may slowly progress over a period of several years. In all our cases, surgery had to be instituted because the condition was bilateral and because it was necessary in order to save the patient's vision. These patients had low blood content of calcium and of phosphorus, and other signs of parathyroid disturbance.

Just a word of warning in regard to eye surgery in these cases—the condition of the patient must be known before any operation is undertaken. The calcium report should be in the surgeon's hand before he operates; otherwise, he will have to contend with the most severe convulsive type of vomiting. This condition may be controlled by the administration of intravenous injections of 10 cc. of calcium chloride in 5 per cent solution, some sodium chloride being used before and after the administration of the calcium chloride to make sure that it flows easily and that it is washed in afterward. Dr. McCullagh, who has had these patients under observation, states that his best results have been obtained by the administration of two heaping teaspoonfuls of calcium lactate as often as every two hours, the dose being decreased as the blood calcium increased. He has found it unnecessary to use any other forms of calcium.

With this knowledge of the patient's condition, the surgical risk of thyroidectomy in these is the same as in other cases. In our own series of nine operations, good results were secured in seven; in two, good visual results were obtained in spite of iris prolapse. In both of these cases, severe vomiting occurred shortly after operation. All our patients were women under 50 years of age except two, one of whom was 52, the other 60. In all the cases in which cataracts formed, the condition developed directly after thyroidectomy. The question arises whether the cataracts are due to spasm or to low calcium content. These patients must be kept under medical observation and an attempt must be made to transplant parathyroids, although to date in cases in which this procedure has been attempted satisfactory results have not been secured. In 150 cases of deficient parathyroid secretion, cataract has been present in 10 cases, or 7 per cent.

Eye disorders are probably an involvement of disturbances of the pituitary gland as often as of disturbances of the thyroid gland, but on account of the inaccessability of the former the lack of proper methods of examination makes it difficult to find out whether this gland is responsible for the eye condition.

In a group of children with progressive myopia but otherwise normal, we found a very low dextrose tolerance curve and a low basal metabolic rate. We do not believe that enough time has elapsed for a complete report to be made of these cases. There is some constant factor in the production of the high degree of myopia and of hyperopia of the corneal disturbances, which range from high astigmatism to irregularities and keratoconus. These cases belong in the hypopolyglandular group. We have found two cases that were exceptions to this rule—both in women. In one, marked corneal irregularity was present. This patient had suffered from severe hyperthyroidism; her basal metabolic rate had fallen from plus 86 to minus 40. This condition was associated with a general glandular dysfunction. The other patient, in whom marked keratoconus was present, was in the hyperracts were concerned was observed. The matter of the prevention or arrest of lens opacities that occur in parathyroid deficiency cases, whether operative or otherwise, is a different story, as Dr. Ruedemann has shown. Lens epithelium grown in vitro will stand tremendous increases in calcium content of the nutrient medium, even up to the point of precipitation of the excess of the calcium, but will not permit of reduction of available calcium without cellular damage. In considering the matter of surgery in cases of hyperthyroidism, it is well to have in mind the reconstruction of the eyelid tissues that is necessary in certain of these patients. I have used, and have seen others use, Wheeler's method and found it highly satisfactory.

Dr. T. B. Holloway, Philadelphia: Several years ago in conjunction with Dr. Fry I placed on record 100 cases of exophthalmic goiter, which work was undertaken with the hope of discovering some relation between the thyroid and the pituitary, as manifested by changes in the visual field. Unfortunately, we failed to find anything definite; but, curiously enough, immediately after that paper was published a patient did come to my office and her field was strongly suggestive. I think it was probably a coincidence, for I know it is not the rule in these cases. The author has referred to there being an absence of exophthalmos. I should like to know what method he used for determining the presence or absence of exophthalmos. The border line is very broad, but if I remember correctly in our studies we could not determine the existence of an exophthalmos until the exophthalmometer recorded a measurement between 17 and 18 mm. I should like to mention another point in the relation of the fields to pituitary cases in which there is diplopia without apparent associated muscle palsy: Beckman and Kubie, working with Gordon Holmes in London, made important observations in regard to this diplopia. After first briefly referring to binocular single vision they referred to miners' nystagmus. These men toil under poor illumination and under these conditions the perimacular vision is better than the macular vision, although it is subject to quicker fatigue and has no one point at which vision is better than at another. For this reason, while the eyes may oscillate and nystagmus occur, no diplopia develops. They then called attention to the fact that in certain pituitary body cases in which there is central scotoma, in all probability the extra-ocular muscles call into play points on the retina not previously associated, heteronymous fields, and as a consequence there is diplopia without involvement of the ocular muscle. I hope that those who come in contact with such cases will keep these observations in mind.

Dr. A. D. Ruedemann, Cleveland: There were among these cases 150 of postoperative tetany, and 18 patients had cataracts that had been studied. Eleven were operated on. They came in shortly after the thyroid operation and began to speak of a sudden blurring of vision which lasted for a minute the first time and increased in duration until it lasted a half hour. Observation revealed a slight amount of granular deposit on the posterior capsular surface. This increased and, as the spasms increased, these flecks assumed the line of contraction of the lens. It is my assumption that they formed spicules, and as the spicules became more apparent the lens changes became more diffuse and these patients went into complete cataract often in three weeks. In regard to pituitary involvement, as I said at the outset, one cannot isolate one gland. If a patient has hypothyroidism and one looks for changes in the pituitary, one will usually find them. These patients usually have increased dextrose tolerance. If the general condition does not have anything to do with the eye condition, surely treatment would not be of value. However, if they are given thyroid extract or pituitary they get over most of their difficulties. In case of hypothyroidism with pituitary dysfunctioning, with high myopia, these patients have a low basal metabolism, even as low as — 51. They have a flat dextrose tolerance curve, and they are definitely helped by thyroid extract over a long period of time. It is also true in cases of keratoconus. Most persons with keratoconus have hypothyroidism, but they may have a change from hyperthyroidism to a hypothyroidism. I am sure the more one sees of these cases the more one will realize that there is something in endocrine disturbance in connection with eye disease.

STAPHYLOCOCCUS FOOD POISONING*

EDWIN O. JORDAN, Ph.D., Sc.D.
CHICAGO

European writers have generally held the opinion that bacilli of the Salmonella (paratyphoid-enteritidis) group are the common causes of bacterial food poisoning. Savage and White[1] state that the majority of outbreaks in Great Britain and practically all of any importance are due to specific infection or intoxication with bacilli of this group, and White[2] later specifies Bacillus aertrycke as the "cause of the vast majority of outbreaks and cases of acute gastro-enteritis (food poisoning)."

Experience in this country has not shown that paratyphoid bacilli can be connected with outbreaks of food poisoning in nearly as high a proportion as indicated by the foregoing statements. Over a period of several years, material from typical outbreaks of food poisoning has been received from physicians and public health officials and subjected to careful examination in our laboratories. This material has consisted chiefly of food epidemiologically implicated and of stool samples from patients. In many instances the specimens have been fresh and in unexceptionable condition for bacteriologic examination. Although suitable methods, such as Endo medium and eosin-methylene blue (methylthionine chloride, U. S. P.) have been used, a thorough search for organisms of the Salmonella type has in most cases yielded negative results. It does not seem likely that in the United State "nearly nine tenths" of the outbreaks of food poisoning are due to Salmonella, as is thought to be the case in Great Britain.

The discovery of a new type of food poisoning due to the toxic products of staphylococci seems to explain a certain number of outbreaks in which no Salmonella bacilli are found. The following observations may contribute to the recognition of staphylococcus food poisoning and to an appreciation of its importance:

Three outbreaks[3] have already been placed on record. In the first of these,[4] observed in 1914, a staphylococcus of the albus variety was apparently the cause of several attacks of acute gastro-enteritis on a farm in the Philippines. Milk that was inoculated with the strain isolated, and then incubated for about eight hours, caused similar illness when drunk by the experimenter. In the second,[5] yellow staphylococci were found in large numbers in a Christmas cake which had caused the illness of ten persons in Chicago in December, 1929; two different strains, isolated independently by different observers and grown in ordinary nutrient broth for from two to three days, yielded filtrates that produced violent gastro-intestinal symptoms when swallowed in from 2 to 10 cc. amounts by human volunteers. Another outbreak of food poisoning,[6] affecting four persons in a Porto Rican village, staphylococci have been reported present in large numbers in the incriminated food, whereas no paratyphoid bacilli could be found. The following statement, for example, appears in the 1927-1928 report of C. W. Arthur, the bacteriologist of the Pasadena Health Department Laboratory:

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* From the Department of Hygiene and Bacteriology, University of Chicago.

[1] Savage, W. G., and White, P. B.: Medical Research Council, Special Report Series number 91, London, His Majesty's Stationery Office, 1925.

[2] White, Medical Research Council, System of Bacteriology 4:127, 1929.

[3] Barber, M. A.: Philippine J. Sc. (Trop. Med.) 9:515, 1914. Dack, G. M.; Cary, W. E.; Woolpert, Oram; and Wiggers, H.: J. Prev. Med. 4:167 (March) 1930. Jordan, E. O.: The Production by Staphylococci of a Substance Producing Food Poisoning, J. A. M. A. 94:1648-1650 (May 24) 1930.

[4] Barber (footnote 3).

[5] Dack (footnote 3).

[6] Jordan (footnote 3).

> Two outbreaks of food poisoning occurred, one originating from French vanilla ice cream and one from custard-filled cream puffs. The symptoms in the outbreaks were practically the same: acute nausea and vomiting and diarrhea with spastic abdominal pains, beginning in from three to five hours. When the intestinal tract was cleared, recovery occurred quickly in most instances. In neither food was it possible to demonstrate organisms of the Salmonella group. However, a gram-positive coccus with the same characteristics was present in enormous numbers in and isolated from each food.

Since the publication of our first papers,[13] two outbreaks of food poisoning in New York State have been described,[14] both of which may have been due to staphylococci. In one of these, a cake purchased at a church fair caused violent illness in four members of a family of six, the two persons unaffected having eaten the other articles of food served but not the cake. The incubation period was less than an hour, and the symptoms were similar to those observed with staphylococcus filtrate. Staphylococci were found to be the predominating organisms in the cake and "no organisms of the enteric disease group were isolated." In the other instance an outbreak of gastro-enteritis, estimated at not less than 125 cases, occurred among persons eating cream puffs or chocolate eclairs manufactured and distributed by a wholesale bakery. The onset of symptoms occurred within a few hours after eating. Staphylococci were isolated from the filling, but "none of the organisms generally associated with enteric diseases was isolated from the filling of the pastry or from the feces of patients."

COMMENT

The staphylococcus type of food poisoning differs in several respects from the more familiar type due to members of the Salmonella or paratyphoid group. It could, of course, never be confused with botulism.

There is a distinct difference in the incubation period. Staphylococcus food poisoning usually develops within a few hours after the toxic substance is swallowed. In the outbreaks thus far traced to this source, nearly all the persons affected have manifested symptoms within four hours, although rarely symptoms have appeared later. Human volunteers, of whom we now have a record of approximately 100, almost invariably show the first objective symptoms in from two to four hours after swallowing toxic staphylococcus filtrates. Vomiting appears with considerable regularity about three hours after the feeding.

Salmonella food poisoning, on the other hand, has as a rule a considerably longer incubation period. Although marked individual differences are observed, the onset of symptoms is on the average at least from six to twelve hours after eating the food and is probably somewhat longer. In many authentic instances the Salmonella incubation period is more than twenty hours.[15]

No deaths have yet been observed from food poisoning of the staphylococcus type. In the four outbreaks definitely traced, twenty persons are known to have been acutely ill, without any fatalities. The same is true of the instances reported by Barber and by Ramsey and Tracy, living staphylococci as well as their products being swallowed in these cases. In the four additional outbreaks previously summarized (*a*, *b*, *c* and *d*), in which there is strong evidence that staphylococci were the inciting agents, 206 persons were affected, without a death. Approximately 100 human volunteers who have become ill after swallowing sterile toxic filtrates have all recovered completely. The symptoms are, however, in some cases alarmingly violent and accompanied by great prostration. I do not believe that it can yet be said that this form of food poisoning is without danger to life. The mortality in the Salmonella form of food poisoning is usually estimated at about 1 to 2 per cent.

Perhaps the most important difference yet found between the Staphylococcus and the Salmonella types of food poisoning is that the staphylococci isolated in these cases yield a sterile broth filtrate which reproduces the characteristic symptoms when swallowed in as small amounts as 2 cc., whereas Salmonella filtrates have been fed to human volunteers in as large amounts as 145 cc. without producing any symptoms.[16]

The staphylococci concerned in food poisoning, as far as they have been studied, do not seem to differ in their main cultural characteristics from the common and widely distributed members of this group. Both albus and aureus varieties are found among the strains yielding toxic filtrates. There is evidence that strains that at one time produce the toxic substance do not produce it at another time, and vice versa. The majority of the toxic strains that we have isolated have lost (temporarily?) after some months of cultivation the power of yielding toxic filtrates. In two instances,[6] strains that produced a toxic filtrate early in 1930 soon after isolation (strains 1 and 5 in this paper) still produced, a year later (February-March, 1931), filtrates that caused illness in human volunteers. The potency of the filtrates from these year-old strains was not as great, however, as that of two more recently isolated strains, one from the Milwaukee cake (March, 1930) and one from chicken gravy (March, 1931).

The source of the staphylococcus contamination of food has not yet been determined. In connection with the Milwaukee cake outbreak, we were able to obtain samples of the materials used in preparing the cake: frozen eggs, flour, sugar, cocoa, soda, flavoring compound and "crisco." While abundant bacterial growth occurred from several of these ingredients, staphylococci were not found in large numbers in any. Samples of batter mixed by hand by six different workers in the bakery were also examined without in any instance disclosing staphylococci in noteworthy numbers. There is evidence that staphylococci with food poisoning qualities are sometimes present in cow's milk,[5] but since it has been shown[6] that staphylococci from the apparently normal human throat and other sources are also able to produce a substance that is toxic when swallowed, the derivation of the staphylococci causing any particular outbreak may not be easy to determine. The thorough study of a larger number of outbreaks than yet available will be necessary before the question of origin can be satisfactorily settled.

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[13] Dack (footnote 3). Jordan (footnote 3).

[14] Health News, New York State Dept. of Health, Oct. 13 and Dec. 18, 1930.

[15] Sacquépée, E.: Les empoisonnements alimentaires, Paris, J.-B. Baillière & fils, 1909. Savage, W. G.: Food Poisoning and Food Infection, London, Cambridge University Press, 1920. Savage, W. G., and White, Bruce: Medical Research Council, Special Report Series number 92, London, His Majesty's Stationery Office, 1925.

[16] Dack, G. M.; Cary, W. E., and Harmon, P. H.: J. Prev. Med. 2:479 (Nov.) 1928.

femurs, pelvis and rib-cage revealed no evidence of a malignant growth. However, these roentgenograms showed a rather advanced hypertrophic arthritis of the knees and lumbodorsal spine.

A spinal puncture was then performed. The fluid was clear and colorless, the pressure 6 mm. of mercury (normal). The Queckenstedt test was definitely positive, there being absolutely no rise in pressure on bilateral compression of the jugular veins. The cell count was 6 lymphocytes, the Pandy test was positive, and the total protein was 160 mg. per hundred cubic centimeters. These observations strongly pointed to a subarachnoid block, probably the result of tumor. Accordingly, the clinical observations were confirmed and the level was estimated to be about the first dorsal segment.

Two days later a cisternal puncture was done, 1 cc. of fluid removed and 1 cc. of warm iodized poppy-seed oil slowly injected. The patient was held in the sitting position and fluoroscopy was performed by Dr. L. B. Crow, the iodized oil descending to a level opposite the upper border of the fifth cervical vertebra, where it stopped, showing a distinct filling defect. Plates taken one hour and twenty-four hours later revealed the same evidences of block.

The diagnosis of a cord tumor was accordingly concurred in by the neurologist, neurosurgeon and roentgenologist. The lack of painful symptoms was in favor of an intramedullary growth and this point leading, of course, to a bad prognosis was carefully explained to the patient. She, however, decided to be operated on, despite the fact that no great hope of alleviation or cure could be offered her.

August 19, one of us (E. M.) under local infiltration with procaine hydrochloride performed a laminectomy on the patient. After removal of the laminae of the fifth, sixth and seventh cervical vertebrae and opening of the dura, an endothelioma which lay between the meninges was removed. This tumor weighed 2.5 Gm. and had compressed the right side of the cord, thereby reducing its caliber to about one-third its normal size. The dissection of the tumor was complicated toward the end by the necessary pulling on the posterior roots, which caused the patient considerable pain. It was, however, completely removed and the patient returned to her room in excellent condition.

Within half an hour after the operation had been completed, the patient noticed that she was able to flex her left ankle slightly and move the toes of her left foot. Within twenty-four hours she began to regain the use of her left hand. Within a week, flexion, extension, adduction and abduction of the left leg and thigh were performed and about this time she began to recover the ability to bend and extend the toes of her right foot. The patient remained in the hospital for three weeks, owing to a small sinus in the wound. On her discharge she was able to control her hands perfectly, bend and extend her left leg and flex her right leg.

From that time to the present her improvement has gradually increased. In November, 1929, a letter was received from the patient in which she stated that she was able to use her hands as well as ever in her life, she was able to sit up unsupported, and she could swing her legs from one side of the bed to the other so that she could get in and out of a wheel chair unsupported. The control of her sphincters had almost completely returned and she expected to attempt the use of crutches in the near future. The atrophic muscles of her hands had noticeably filled out and their power was excellent.

In March, 1931, the patient was last seen and examined. Her improvement had been very marked. She was able to walk around her house and garden without the use of crutches or any other support. Her general health was excellent. She had regained control of her sphincters, and her only complaints were occasional burning, prickling sensations in the right foot and in the region of the right knee.

The physical examination at this time showed that the right ankle and knee jerks were still very hyperactive and that the Babinski reflex on the same side was positive. The ankle clonus, however, had disappeared. The power in both lower extremities was excellent and there were no noticeable sensory changes.

COMMENT

This case illustrates the advantages of cooperation between clinician, surgeon and roentgenologist. All three individuals contributed in an essential way to the favorable outcome. It also illustrates the lack of careful examinations and useless therapy to which such patients are often subjected. It appears to us that the favorable result is remarkable owing to the rather advanced age of the patient, the cervical location of the tumor and the long duration of the symptoms.

490 Post Street—909 Hyde Street.

HYPERINSULINISM: REPORT OF A CASE

Henry J. John, M.D., Cleveland

Jan. 24, 1929, a physician, aged 61, came to the Cleveland Clinic with a history of diabetes. His weight had decreased from 230 pounds to 137 pounds (104 to 62 Kg.), a loss of 41 per cent. He was 5 feet 8½ inches (174 cm.) in height. He gave the following history:

> After an attack of influenza a month previous to entering the clinic, he lost weight rapidly and became very weak. He was exceedingly nervous and a tremor was present. Nocturia and glycosuria developed. He took some medicine by mouth but kept on losing weight and strength, and jaundice developed. The previous history contained nothing of importance.

On physical examination the patient was found to be extremely weak and emaciated. The teeth and tonsils were infected. The chest was clear, but a pulmonic systolic murmur was present. The liver was enlarged. The blood pressure was 136 systolic and 70 diastolic, the pulse 108 and the temperature 99.2 F. The basal metabolic rate was plus 83 per cent. Roentgen examination of the gallbladder revealed shadows suggestive of stones. Roentgen examination of the gastro-intestinal tract gave negative results.

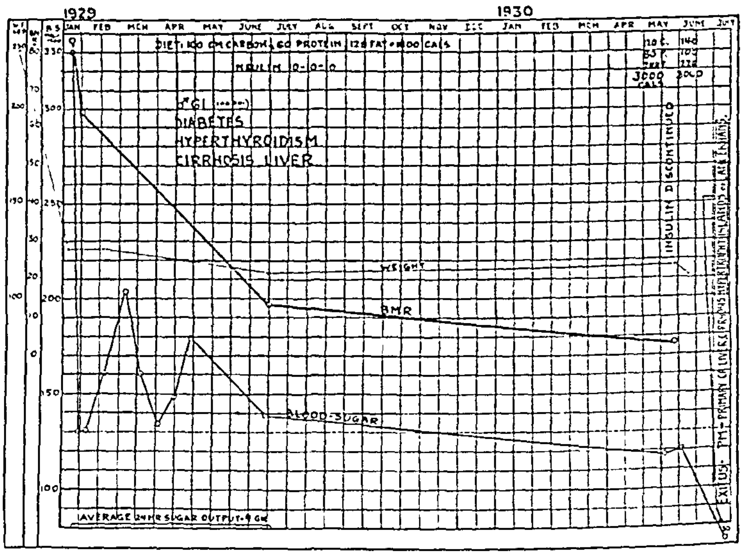

Fig. 1.—Clinical conditions in a patient presenting hyperthyroidism and diabetes, with hyperinsulinism.

The diagnosis included hyperthyroidism, diabetes mellitus, septic teeth and tonsils, and hypertrophic cirrhosis of the liver.

The patient entered the hospital and was put on routine diabetic treatment and compound solution of iodine (Lugol's solution) 15 minims (0.9 cc.) three times a day. The infected teeth were extracted. Marked improvement was noted; the blood sugar dropped to a normal level, where it remained. The patient was putting out about 4 Gm. of sugar in twenty-four hours during his stay in the hospital. The nervousness and

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SATURDAY, DECEMBER 5, 1931

FEE SPLITTING—AN OLD ETHICAL PROBLEM

A basic principle in medical practice demands that the physician call as a consultant the best available man for the purpose. That principle is determined, of course, by a fundamental consideration: the one impelling motive in every action taken by a physician must be the good of his patient. For these primary reasons, ethical physicians oppose fee splitting in any way, shape, manner or form. Every one now realizes that the general practitioner who makes the diagnosis and who is primarily responsible for the care of the patient deserves a much greater percentage of what the patient is able to pay than he actually gets when the patient is referred to a surgical, otolaryngologic, ophthalmologic or other consultant. Nevertheless, if this is accomplished by the secret division of fees it is an abomination full of evils. If patients could come to understand that the general practitioner's fee, when a specialistic procedure is necessary, should be greater than on ordinary occasions, the difficulty would be largely overcome.

Still more hazardous to the patient and to the honesty of the medical profession are the inroads on the traditional ideals of medicine brought about by the entrance into the medical field of innumerable technical procedures. The changing nature of medical practice means that medicine is now conducted not only by the 150,000 physicians who practice in our country but also by several hundred thousand nurses, laboratory technicians, nonmedical roentgenologists, anesthetists, dietitians, physical therapy aides and similar groups. These workers do not have the background conferred by scientific medicine. To them in many instances "ethics" is merely a word. Moreover, technical services are being purveyed by corporations sometimes controlled by business men who are not physicians, sometimes by physicians who are primarily business men. In various parts of the country, physicians are being urged to arrange for laboratory service, for x-ray service, for physical therapy help, for colonic flushing, and for dietetic service with corporations, institutions, laboratories or technicians who are willing, provided the physician sends his patients to them, to give to the physician a portion of the income derived from such clientele. If it is essentially unethical for a physician to choose, as a surgeon for his patient, the operator who will give him the largest percentage of the fee rather than the one who would seem to be the best available surgeon for the purpose, it is equally wrong for him to select any other service to be given to the patient on the same basis. With this point of view there cannot be any argument. The essential dishonesty cannot be evaded by any form of charter, contract, mutual agreement or similar arrangement.

The nature of the times is such that men driven by economic necessity seek to find plausible apology for evasions of ideals and principles that in more liberal times they would support without the slightest hesitation. Manufacturers whose competitors give them little concern in times of prosperity burn with indignation at the slightest hint of unfair competition during times of economic depression. The traditions and ideals of scientific medicine have weathered many an economic storm during the two thousand years that they have guided the noblest of professions. It is reasonable to believe that the tottering of a few during this time of stress will not become the example that will lead the rest of the profession to follow the black sheep blindly over the precipice.

MORE ABOUT THE MENACE OF METHYL ALCOHOL

The comparative toxicity of methyl alcohol, or methanol as it is now frequently designated, has been known for many years. Soon after the middle of the nineteenth century it was clearly established that "methylated spirits," or wood alcohol, represented a serious hazard in certain industrial processes. For some time the exceptionally poisonous properties were attributed to impurities in the commonly used methanol, wood alcohol. Improvements in the processes of its production led to removal of offensive odors and other purification resulting in increased sale for a variety of purposes. The dangers were not lessened. Then several factors came to the fore in bringing about greater danger from methyl alcohol. The prohibition of the sale of alcoholic beverages led to the substitution of methyl alcohol for the forbidden grain spirit, ethyl alcohol, frequently on the unwitting assumption that these chemical compounds so similar in many properties were practically interchangeable from a physiologic standpoint. Impure methyl alcohol began to be used as a denaturant of ethyl alcohol, to permit the latter to be employed for technical purposes and yet make it unfit for human consumption. This led to numerous fatalities through the drinking of "industrial alcohol" containing methyl alcohol or products distilled from it. Further-result. Specific serums have thus become of life-saving value both as curative and as preventive agents. Problems of immunity are being opened for solution.

In the course of the study of contagion and infectious diseases, investigators have come to appreciate the importance of discovering susceptible experimental animals. It is not enough to isolate the harmful microorganisms or to separate the more elusive filtrable viruses. The response of the body to their presence—the results of their invasion into the fluids and tissues—forms a significant part of the picture of the resultant disease. All the features should be reproducible in their entirety in order to facilitate the study of etiology and treatment. Different species of animals show quite unlike susceptibilities to some of the human ailments. The initiation of progress in combating them is in no small measure made possible, therefore, by finding susceptible animals for the study of the manifestations on the one hand, and for the production of immune serums on the other. Medical history affords illustrations alike of the help afforded by the discovery of suitable animals, such as the horse, in the development of antidiphtheritic substances, and of the retardation of scientific advancement in other instances owing to the inability to imitate specific disorders with certainty outside man.

This has to some extent been true of the dreaded poliomyelitis. The monkey was early found to show some susceptibility. Heretofore it has appeared that only a portion of the human strains of the virus can be implanted in the experimental animals. Flexner[2] has pointed out that, not infrequently after the first successful inoculation of monkeys with human spinal cord or medulla obtained in fatal cases of poliomyelitis, the succeeding inoculation of the spinal cord of the affected monkey has failed to induce disease. The reason for this disparity is not known. Newly announced investigations[2] at the Rockefeller Institute for Medical Research, New York, indicate a way to increase the proportion of successful inoculations of affected human and monkey spinal cords and brain stems. It consists of repetition of the injections of the virus-bearing tissues. According to Flexner, the abortive can be converted into the progressive paralytic disease by means of reinoculation. Whether the acceleration is due to virus alone or to alien tissue elements remains uncertain. It may be merely a summation of virus effects. The immediate feature of moment is the improvement in research technic, for the numerous experimental failures can now presumably be turned into a liberal quota of successes. The 1931 epidemic of poliomyelitis has sufficed to impress the public as well as the physician with the need of persistent investigation. For such studies in poliomyelitis an improved tool of research now seems to have been devised.

THE PROBLEM OF VITAMIN ASSAY

Any one who has had occasion to deal in any thorough way with the modern problems presented by the discovery of the vitamins must realize the difficulties that attend the quantitative aspects of the subject. It has become obviously important to secure estimates of the varying content of vitamins in the numerous foods that carry these indispensable nutritional substances. The need of suitable methods of assay has been further accentuated along with the growing efforts to separate the different vitamins from their natural carriers and to prepare concentrates that shall be far richer in the food factors than are the natural products. The questions of comparative potency arise in relation to the influence of the varied processing and culinary procedures that foods may be subjected to in the home as well as in the factory. Wherever food conservation is involved, the possibility of deterioration is presented; and this applies to the essential vitamins as well as to the energy-yielding nutrients. A good illustration is afforded by cod liver oil. The value of this widely used medicinal food lies above all in its richness in vitamins A and D. On this account the Council on Pharmacy and Chemistry of the American Medical Association requires that the specific vitamin potency of brands of cod liver oil and cod liver oil concentrates accepted for inclusion in New and Nonofficial Remedies shall be declared on the label and in the advertising of such products.

Unfortunately, assay procedures have been attended with great difficulties. So long as the chemical identity of a vitamin remains undetermined, a statement of potency depends on reference to some reasonably stable and readily obtainable product that shows little variability with respect to the factor in question. Such well defined products have been difficult to secure. On this account the determination of potency has tended in recent years to be based on the physiologic response of a test animal to a given intake or dose of the product to be assayed. This is illustrated in the first standard procedure, for cod liver oil, to be introduced into the U. S. Pharmacopeia X—a method for measuring the content of vitamin A. It consists in ascertaining how much of the oil is required to induce growth at a selected rate of gain in body weight when the substance to be tested is added to a vitamin A free ration of defined character. Experience has shown many pitfalls and opportunities for error. The species of animal, the preliminary depletion of the test animal with respect to vitamin A, and other factors are liable to modify what is in essence a "curative" test. The details of the difficulties need not be rehearsed here. Some workers have preferred to deal with "preventive" tests whereby the quantities required to avert symptoms of avitaminosis are ascertained.

The establishment of units has been confronted with even greater difficulties. The intricacy of the subject were frequently increased in all types of nephritis and that in some of the degenerative cases the excretion amounted to gross meliturial.[4] Hiller has now clearly identified the presence of dextrose (by distinction from levulose, mannose, lactose or maltose) in the renal excretion of such patients.

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[2] Flexner, Simon: Accelerated Infection in Experimental Poliomyelitis, Science 74: 520 (Nov. 20) 1931.

AMERICAN FOUNDATIONS

The general impression prevails that vast sums of money are distributed by various foundations for the public welfare, but thus far little accurate information has been available as to just how much money is distributed and the uses to which it is put. In order to answer this question, the board of trustees of the Twentieth Century Foundation has canvassed the situation and made available a report on American foundations and their fields, covering distributions up to the end of 1930. The definition used indicates that a foundation must be a separate organization with its own board of trustees or directors set up to disburse money not only in operating its own activities but in particular by making direct grants to outside beneficiaries. Religious foundations are not included in the present survey. Apparently the foundations make grants to almost every phase of human activity. One hundred and twenty-two are included in the compilation. The capital funds involved amount to $853,450,114. Since seventeen foundations did not make available the facts, an estimate of approximately $1,000,000,000 seems reasonable. The largest foundations include the Carnegie Corporation with $160,000,000, the Rockefeller Foundation with almost $150,000,000, and the General Education Board with almost $94,000,000. Out of the total of $950,000,000 for all the foundations, 20 of the 122 comprise $725,559,829, or 85 per cent of the total. Grants paid during the year amounted to $52,476,137. The field of medicine and public health was most popular, receiving $18,627,222, or more than one third of all of the funds given away. General education came next. An analysis of the manner of distribution of funds for medicine and health reveals the entrance of the foundations into almost every aspect of medical care.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 11:15 a. m. on Saturday over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 12. Cold Facts About Colds.

Five Minute Health Talks may be heard over Station WBBM of the Columbia Broadcasting System at 2:25 p. m. on Monday, Wednesday and Friday.

The program for the week is as follows:

December 7. Dandruff, Dandruff Everywhere.
December 9. New Hazards for Old.
December 11. The Healthy Mind.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

GEORGIA

Dr. Hoke Appointed Surgeon at Warm Springs.—Dr. Michael Hoke of Atlanta has been appointed surgeon-in-chief of the Georgia Warm Springs Foundation, effective December 1. He succeeds Dr. Leroy W. Hubbard, chief surgeon since 1926, who, according to the report, will do extension work for the foundation. Dr. Hubbard will make trips to areas of epidemics, consult with state, county and city commissioners of health, and advise with hospitals in regard to medical treatment.

Health at Atlanta.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended November 21, indicate that the highest mortality rate (19) appears for Atlanta, and the rate for the group of cities as a whole, 11.1. The mortality rate for Atlanta for the corresponding period last year was 15.9, and for the group of cities, 11.8. The annual rate for eighty-two cities for the forty-seven weeks of 1931 was 11.8, as against a rate of 11.9 for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

ILLINOIS

Conference of Health Officers.—A conference of Illinois health officers and public health nurses will be held in Springfield, December 17-18. The principal theme of the convention will be ways and means of minimizing the effects of the economic depression on health and of extending more rapidly the newer methods of controlling epidemics. Among the subjects to be presented are poliomyelitis, whooping cough, state diagnostic laboratory in relation to health officers and practicing physicians, recent advances in immunology, convalescent serum in control of communicable diseases, toxoid as a diphtheria preventive, current statistics on diphtheria in the United States, health problems caused by the depression, White House Conference on Child Health and Protection and its medical aspects, new phases of pediatric medicine, public health nursing, economic problems of dental public health, and child hygiene work in the county health unit. Guest speakers will include Harry E. Barnard, Ph.D., director, White House Conference on Child Health and Protection, and Drs. Walter T. Harrison and Estella Ford Warner of the U. S. Public Health Service, all of Washington, D. C.; Mr. C. C. Young, director, state laboratory, Lansing, Mich., and Dr. John E. Gordon of the Detroit health department.

Chicago

Dr. Sigerist to Lecture.—Dr. Henry E. Sigerist, professor of the history of medicine and director of the Institute of the History of Medicine of the University of Leipzig, will deliver four lectures under the auspices of the University of Chicago and Rush Medical College, Institute of Medicine of Chicago, Society of Medical History of Chicago, and Northwestern University. The first lecture will be held, December 7, at the University of Chicago on "Medical Literature of the Early Middle Ages"; the second, December 8, at Rush Medical College, "Medicine of the Renaissance: Fracastor, Paracelsus, Vesalius, Ambroise Paré." The latter will be the John Dodson lecture. The third lecture will be given, December 8, on "Problems and Methods of Historical Pathology," before the Institute of Medicine at the City Club. This meeting will be preceded by an informal dinner in honor of Dr. Sigerist. The last lecture will be given, December 9, at Northwestern University, on "The Sanctuary of Asklepios in Epidauros."

Society News.—At the meeting of the Chicago Urological Society, November 25, Drs. Herman L. Kretschmer and Lawrence E. Pierson, Sioux City, Iowa, spoke on "Fibrolipomatosis of the Kidney"; Harry C. Rolnick and Clement P. O'Neill, "Skin Metastases in Carcinoma of the Bladder," and Benjamin Earl Fillis, "A Spontaneously Expanding Bougie for Ureteral Dilatation."——Dr. Charles L. Scudder, Boston, addressed a joint meeting of the Central States Society of Industrial Medicine and Surgery and the Chicago Society of Industrial Medicine and Surgery, December 2, on "Present Status of the and Operative Treatment"; Cyrus E. Burford, St. Louis, "Diagnosis and Management of Stone in the Kidney and Ureter"; John J. Moorhead, New York, "Practice of Traumatic Surgery"; Edwin M. Miller, Chicago, "Problems in Surgery in Children"; Harry S. Gradle, Chicago, "Etiology of Ocular Diseases"; Lee Wallace Dean, St. Louis, "Sinusitis in Children"; Albert Graeme Mitchell, Cincinnati, "Certain Phases of Nutrition in Childhood"; Marion A. Blankenhorn, Cleveland, "Neurological Aspects of Pernicious Anemia"; Frank H. Lahey, Boston, "Carcinoma of the Colon and Rectum: Its Diagnosis and Surgical Treatment," and Daniel L. Sexton, St. Louis, "Disorders of the Hypophysis." In the evening there was a stag buffet supper with entertainment.

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[4] Hawkins, J. A.; Mackay, E. M., and Van Slyke, D. D.: J. Clin. Investigation 8: 107 (Dec.) 1929.

NEW JERSEY

Society News.—The Essex County Medical Society held a demonstration clinic on syphilis at its meeting in Newark, November 12, in which the participants were Drs. Harrison S. Martland, Charles Englander, Francis J. McCauley, Newark, and Arthur J. Casselman, Camden.——Dr. Henry L. Bockus, Philadelphia, addressed the Camden County Medical Society, Camden, November 3, on diarrhea.——Dr. Nicholas M. Alter, Jersey City, addressed the Hudson County Medical Society, November 4, on "Practical Aspects of Nephrosis."——Dr. Mather Cleveland, New York, addressed the Bergen County Medical Society, Hackensack, October 16, on "Orthopedic Treatment of Poliomyelitis."——Dr. George M. Dorrance, Philadelphia, addressed the Cumberland County Medical Society, Bridgeton, October 13, on traumatic surgery.——Dr. Wells P. Eagleton, Newark, spoke on "Traumatism of the Frontal and Temporal Regions in Relation to Meningitis" before the Middlesex County Medical Society, Perth Amboy, October 21.——Dr. Henry W. Cave, New York, addressed the Passaic County Medical Society, Paterson, October 8, on "Difficulties Encountered in Operations on the Common Bile Duct."——Among speakers at the annual meeting of the Tuberculosis League of New Jersey, Trenton, October 16, were Drs. Donald B. Armstrong, New York, on tuberculosis in children, and John Bennett Morrison, Newark, "Rôle of the Physician in the Tuberculosis Fight."

NEW YORK

Grade B Raw Milk Abolished.—After July 1, 1932, grade B raw milk will be discontinued in New York. This grade was established in 1928 as a temporary measure to allow producers an opportunity to have their herds tuberculin tested. Its requirements were exactly the same as those for grade A raw milk except that such milk was not required to be from tested cows. In view of the fact that only a small amount of this grade of milk is now being sold, the Public Health Council, November 11, amended the sanitary code to eliminate it, effective July 1, 1932, thus allowing time for the testing of the remaining herds supplying this grade of milk.

County Society Celebrates One Hundred and Twenty-Fifth Anniversary.—The Medical Society of the County of Albany held its one hundred and twenty-fifth annual meeting at a dinner in Albany, October 28. Dr. George W. Crile, Cleveland, made an address on the evolution of the nervous system. Dr. Charles K. Winne, Jr., president of the society, gave an historical summary of the regulation of the practice of medicine in New York since the seventeenth century. Dr. William D. Johnson, Batavia, president of the Medical Society of the State of New York, and Mayor Thacher of Albany also addressed the meeting. Twelve former presidents of the society were present, including Dr. Frederick C. Curtis, Albany, who held the office in 1878.

Society News.—Dr. Royal H. Mayhew, among others, addressed the Franklin County Medical Society, Malone, October 28, on "Home Treatment Versus Sanatorium Treatment in Pulmonary Tuberculosis."——The twenty-fifth annual meeting of the fourth district branch of the Medical Society of the State of New York was held in Glens Falls, October 21-22. The speakers included the following: Dr. Wilder G. Penfield, Montreal, on "Neurology in General Practice—Early Diagnosis of Remediable Lesions"; Dr. Samuel T. Orton, New York, "Obstacles to the Development of Language Function in Children," and Dr. Walter J. Craig, Albany, "The State Orthopedic Program," and John R. Parker, Schenectady, "The Lawyer and Physician in Welfare Work."——Dr. Earl Dorland Osborne, Buffalo, addressed the Schoharie County Medical Society, Cobleskill, October 13, on "Common Skin Diseases, Exclusive of Eczema."——Dr. Arthur B. Soule, Jr., of the University of Vermont School of Medicine, Burlington, among others, addressed the Medical Society of the County of Washington, Hudson Falls, October 6, on "Studies of the Renal Function."——Dr. Clayton W. Greene, Buffalo, presented a paper on "The Medical Man's Attitude on the So-Called Acute Abdomen" before the Genesee County Medical Society, Batavia, October 26.——Four New York physicians presented a symposium on cancer at a meeting of the Yonkers Academy of Medicine, November 18, as follows: Drs. William P. Healy, "Diagnosis and Treatment of Cancer of the Female Genital Organs"; Ralph E. Herendeen, "Indications for Roentgen-Ray Therapy"; Frank E. Adair, "Treatment of Primary Operable Cancer of the Breast," and George T. Pack, "Melanomas and Pigmented Nevi."——A series of lectures on traumatic surgery was sponsored by the Wayne County Medical Society at Lyons during October and November, with the following speakers: Drs. Henry H. Ritter, New York, on injuries to the head; Henry M. Bergamini, internal injuries; David Goldblatt, burns; Emmett A. Dooley, infections and wounds of the hands, and Seth M. Milliken, common fractures.——Dr. Foster Kennedy, New York, addressed the Medical Society of the County of Nassau, Mineola, November 24, on "Head Injuries."

New York City

Faculty Changes at Columbia.—Dr. Allen O. Whipple has been appointed to the Valentine Mott professorship of surgery, which was recently established at the College of Physicians and Surgeons, Columbia University, and Dr. Israel S. Wechsler has been promoted to the professorship of clinical neurology. Dr. Russell A. Hibbs has resigned as professor of orthopedic surgery.

Personal.—Dr. Alfred F. Hess was recently elected to honorary membership in the German Pediatric Society.——Dr. William S. Ladd, formerly on the faculty of the College of Physicians and Surgeons, Columbia University, has been appointed assistant professor of medicine and associate dean of Cornell University Medical College.——Dr. Clyde Wilson Collings was made an honorary member of the French Urological Association in October, when he addressed the annual congress on "Relief of Bladder Neck Obstruction by Electrosurgery."

Gifts for Research.—New York University has recently announced the following gifts for medical research:

Commonwealth Fund, $5,000 for research in rheumatic fever under direction of Dr. William H. Park; $1,750 to Dr. Park for investigation on antipneumonia serum; $1.750 for the Clinical Pediatrics Research Fund in Pneumonia, under direction of Dr. Charles Hendee Smith.

Harriman Research Fund, $8,750 additional for that fund.

Anonymous donor, $10,000 for the Neurological Research Laboratory Fund.

R. T. Crane, Jr., $5,000 for the department of therapeutics.

International Committee for Study of Infantile Paralysis, $3,000 for study of infantile paralysis under Dr. Park.

Josiah Macy, Jr., Foundation, $3,000 for study of chorea under Dr. Smith.

Chemical Foundation, $1,000 for research on pneumonia.

Health Products Corporation, $1,000 for the Pernicious Anemia Fund.

Oxygen Penthouse.—A penthouse containing two oxygen chambers and a room for the treatment of dust asthma and hay fever has been completed on the roof of the Presbyterian Hospital. The oxygen chambers are equipped for the treatment of patients with pneumonia, cardiac failure and other diseases in which the lungs are affected. A dust filtering apparatus has been installed for the treatment of cases of asthma and hay fever. Oxygen is supplied from a central station, with a separate station for the use of carbon dioxide therapy in conjunction with oxygen therapy. The atmosphere is under thermostatic control. These rooms are for private and semiprivate patients, representing an addition to the oxygen chamber in the hospital proper. The chambers are the gift of Dr. Herman B. Baruch; the building itself was erected by the hospital.

Lectures on Social Problems of Tuberculosis.—The New York Tuberculosis and Health Association is sponsoring a series of lectures in cooperation with the New York School of Social Work on "Current Significance of Tuberculosis as a Social Work Problem." Lectures have been given by Louis I. Dublin, Ph.D., November 10, on trends in the past twenty-five years and possible effects of the present economic situation; Dr. Iago Galdston, November 19, etiology and immunity and different forms of tuberculosis; Dr. James Burns Amberson, Jr., November 24, diagnosis and complications of the disease and Dr. Grant Thorburn, December 1, treatment. Bailey B. Burritt, director, Association for Improving the Condition of the Poor, will speak, December 8, on "Tuberculosis and the Family"; Dr. Dwight Clifford Martin of the city department of health, December 15, "Administrative Control of Tuberculosis in New York City," and Dr. Linsly R. Williams, president of the tuberculosis and health association, December 22, on "Opportunity of the Social Worker to Help Control Tuberculosis."

Philadelphia Board of City Trusts at a meeting at Franklin Institute, November 18. Each received a copper medal, and the honorarium of $1,000 was divided between them. The fund for the John Scott Award was given to the city of Philadelphia under the terms of the will of John Scott, a chemist of Edinburgh, Scotland, who died in 1816, to reward those whose inventions "add to the comfort, welfare and happiness of mankind." Among those who have received the award for medical work within recent years have been Drs. Afranio do Amaral of the Antivenin Institute of America, Alfred F. Hess, New York, and Francis Peyton Rous, New York, in 1927, and W. T. Bovie, Ph.D., professor of biophysics, Northwestern University, Chicago, in 1928. The Drinker respirator, which was perfected in 1930, has been used in the treatment of infantile paralysis, drowning, asphyxiation, electrical shock and drug poisoning. Mr. Drinker is the son of Henry S. Drinker, LL.D., Merion Station, Pa., former president of Lehigh University, and Mr. Shaw is the grandson of Louis Agassiz, famous educator and scientist.

Society News.—At the recent annual meeting of the Clinical Orthopedic Society, Dr. William Barnett Owen, Louisville, was elected president; Dr. Rexford L. Diveley, Kansas City, Mo., vice president, and Dr. Eugene B. Mumford, Indianapolis, reelected secretary. The next annual meeting of the society will be held in Chicago.——The American Society for the Study of Arthritis met in Pittsburgh, December 3-4. At an open meeting, December 3, Dr. Reginald Burbank, New York, discussed "Streptococcic Complement Fixation Test in Arthritis" and Dr. Henry Warren Crowe, London, England, "The Pathogen Selective Blood Test as Applied in Arthritis."——The Mid-South Post Graduate Assembly, formerly Tri-States Medical Association of Mississippi, Arkansas and Tennessee, will hold its next annual meeting in Memphis, February 9-12. Dr. Arthur F. Cooper, Memphis, is secretary.——The second annual meeting of the National Conference on Nomenclature of Disease will be held, December 14, at the New York Academy of Medicine, New York.——Dr. Lewis J. Moorman, Oklahoma City, was elected president of the Southern Medical Association at the annual meeting in New Orleans, November 18-20. The association will meet in Birmingham, Ala., in 1932.——The next session of the Inter-State Postgraduate Medical Association of North America will be held in Indianapolis, Oct. 24-28, 1932.

Yellow Fever Volunteers Receive Congressional Medals.—The gold medals authorized by Congress in 1929 for the recognition of the late Dr. Walter Reed and his associates in the famous yellow fever experiments of 1900-1902 have recently been dispatched to the fifteen volunteers who are still living and to the heirs of the seven who have died, according to press reports. Each medal bears the name of the recipient on one side and the words "Conquest of Yellow Fever" on the other. Posthumous awards were for Drs. Reed, Aristides Agramonte, James Carroll and Jesse W. Lazear, who made up the army commission, and for Edward Weatherwalks, Warren G. Jernegan and William H. Dean. Medals were also sent to the following men:

John H. Andrus, Elmira, N. Y
John R. Bullard, Cuba.
A. W. Covington, Cohocton, N. Y.
Wallace W. Forbes, Minneapolis
Levey E. Folk, Columbus, Ohio
Paul Hamann, East Moline, Ill.
James L. Hanberry, Denmark, S. C.
John R. Kissinger, Huntington, Ind.
William Olsen, Los Angeles.
John J. Moran, Mexico City.
Charles G. Sonntag, Jackson, S. C.
Clyde L. West, Toledo, Ohio.
Dr. Robert P. Cooke, Lexington, Va.
Thomas M. England, Washington, D. C.
James Hildebrand, Atlanta, Ga.

Pensions of $125 per month were granted at the same time to all those on the latter list and to the widow of Private Weatherwalks.

CANADA

Hospital Council Organized.—A federation of all provincial, interprovincial, religious and other hospital associations in Canada, to be known as the Canadian Hospital Council, was organized in September. The aims and objects as outlined in the constitution include the following: (1) to coordinate activities of hospital organizations in Canada, (2) to study hospital problems and the relationship of the hospital to the public, (3) to cooperate with other agencies, (4) to study hospital legislation in Canada and (5) to form a nucleus from which may be formed later a Canadian Hospital Association if such a development should be deemed advisable. Dr. Fred W. Routley, Toronto, was named president of the council and Dr. George Harvey Agnew, Toronto, secretary.

Health Regulations Changed.—The department of health of Ontario has recently rewritten the regulations concerning communicable disease, making them conform to recent concepts of epidemiology and bacteriology. Under the new regulations forty-five diseases are notifiable, in comparison with forty-two on the previous list. Goiter and pellagra were removed from the list and five diseases were added, as follows: ancylostomiasis, erysipelas, infectious or epidemic jaundice, undulant fever and trench mouth. Placarding is no longer required for chickenpox, German measles and mumps. The isolation period for measles was shortened to seven days and immunes from quarantined homes are now allowed to attend school. Poliomyelitis contacts are now quarantined for ten days. The isolation period was also increased for smallpox and reduced for scarlet fever. Other regulations deal with the handling of milk, burial and transportation of the dead, and disinfection.

FOREIGN

Lectures of College of Physicians.—Dr. John S. Fairbairn delivered the Bradshaw Lecture before the Royal College of Physicians, November 3, on "Medical and Psychological Aspects of Gynecology." The Fitzpatrick Lectures were delivered by Dr. James S. Collier, November 5 and 10, on "The Development of Neurology from the Commencement of the Nineteenth Century to the Present Time."

New Journal on Maternity Problems.—A new monthly journal, the *Boletín de la Maternidad*, has recently appeared as the organ of the Department of Maternity Hospitals and Prenatal Clinics of the Sociedad de Beneficencia Pública of Lima, Peru. Drs. H. Larraburc and N. Cavassa are the editors. The first and second issues, July and August, contain articles on obstetrics, infant mortality, infant psychology, mental hygiene, statistics of the maternity hospital of Lima, and general news.

Memorial to Sir Charles Hastings.—The British Medical Association has opened a fund to establish a memorial to its founder, Sir Charles Hastings, in celebration of its centenary, which occurs in 1932. A stained glass window in his honor will be placed in the cathedral at Worcester, the city with which Hastings was most closely identified; a tablet will be placed on the house in Worcester where he practiced, and his grave in the Astwood cemetery in that city will be restored and cared for. Any balance remaining after these objects have been attained will be turned over to the Sir Charles Hastings Fund, the income of which is distributed for the benefit of members of the medical profession and their dependents according to the discretion of its trustees. The opening ceremony of the centenary meeting of the association will be a pilgrimage to Worcester, July 24, 1932, when the memorial window and plaque will be unveiled.

Course in Ophthalmology.—The ninth graduate course in ophthalmology given under the auspices of the American Medical Association of Vienna will be offered between Oct. 1 and Dec. 6, 1932, at the I and II Eye Clinic of the Allgemeines Krankenhaus, Vienna. Lectures will be given by Prof. Josef Meller and Prof. Karl Lindner, chiefs of the clinics, as well as other members of the staff. Members of other departments will lecture on their respective subjects, including roentgen rays, the hypophysis and sinuses, endocrine disturbances, radium treatment, embryology and the modified West operation. This course, which was originated ten years ago at the suggestion of Dr. Edward Jackson, Denver, is given in English for a minimum of ten and a maximum of seventeen physicians, at a fee of $250 each. A preliminary knowledge of ophthalmology is presupposed. Applications with a certified check for $100 should be sent to Dr. Adalbert Fuchs, Vienna VIII, Skodagasse 13. Further information may be obtained from Dr. Fuchs or from the American Medical Association of Vienna, Alserstrasse 9, Café Edison.

Society News.—Physicians who wish to participate in the International Congress of Tropical Medicine to be held in Amsterdam, Sept. 12-17, 1932, are requested to notify the secretary, Dr. E. P. Snijders, Institute for Tropical Hygiene, Amsterdam, not later than December 31.——The Third International Congress of Sanitary Technics and Urban Hygiene will be held at Lyons, France, March 6-9, 1932. Information may be obtained from M. le Docteur Garin, Conseiller Municipal, Rue Ménestrier, Lyons.——The Ninth International Congress of the History of Medicine will be held in Bucharest in September, 1932. The principal subjects for discussion will be the evolution of medicine in the Balkan states and the protection of Europe against bubonic plague. Those wishing to contribute papers are requested to forward the title and a summary of the paper to the office of the congress, Str. Stirbey Voda, 86, Bucharest II, without delay.——The ninth congress of the International Society of Surgery will be held in Madrid,

VITAMIN C

A suitable standard of reference for vitamin C appears to exist ready made. It has been found that the juice of oranges and lemons varies little in vitamin C potency from year to year. The unit is the activity of 0.1 cc. of fresh juice of the lemon, Citrus limonum.

METHODS OF BIOLOGIC ASSAY

The merits of the different methods of biologic assay were not discussed at any length. The substance under examination and the standard preparation are tested simultaneously by the same method. The test substance should therefore show the same value in terms of the standard, whatever the technic. Thus, for vitamin D tests the conference decided that the "line" test, roentgen examination and determination of bone ash are all equally reliable.

The Evils of Medical Socialism

The scheme of the British Medical Association for a national medical service that would provide treatment for every class and cover the whole field of preventive and curative medicine was described in a previous letter (The Journal, May 17, 1930, p. 1612). After the crushing defeat of the socialists in the general election and with the stringent economy and overtaxation rendered necessary by their prodigal expenditure, such extension of the medical socialism of the insurance act is not to be feared for the present. In an address to the Windsor and District Medical Society, Sir Ernst Graham-Little, dermatologist and member of parliament for London University, criticized the association's scheme. He said that it would perpetuate and indeed aggravate the radical defect of the present insurance act—the restriction of insurance benefits to what was described in the act as "general practitioner treatment." This was one of the principal reasons for the dissatisfaction of the insured with the service supplied. Sir Arthur Newsholme, formerly principal medical officer to the local government board, obviously no unfriendly critic, described that service in a recent address as "representing in many ways an obsolete ideal of medicine." The drastic reduction of the capitation fee of panel physicians has been described in previous letters. The medical profession had been able to meet this cut with something like equanimity, because panel practice was not the sole resource of the majority of practitioners. "The problem of the outpatient at the voluntary hospitals" had arisen. Partly as the result of dissatisfaction of insured persons with the national insurance service, the number of outpatients at all the hospitals throughout the country has risen continuously during the last decade, and the remarkable position has come about that, notwithstanding a health insurance involving compulsory contributions and therefore no expense on receiving treatment, which was confidently expected to deplete our outpatient departments, the attendance has risen continuously since 1920 until it now exceeds the figure before the act came into operation. The suggestion that the hospitals should receive only such patients as were countenanced by physicians acting under the orders of the British Medical Association was a complete misapprehension of the situation. As the expenses of the hospitals were met by the general public, such an assumption of authority would not recommend itself to those who supported the institutions, who were now largely the working classes themselves.

London's Biennial Epidemics of Measles

It is curious that epidemics of measles occur regularly in London at intervals of two years. They begin in the late autumn, reach a maximum in March, and take some six or seven months to complete the circle of London. Sporadic cases occur ı the interepidemic periods, especially in centers of overcrowdıg, but not until sufficient susceptible material has accumulated are the conditions ripe for starting a new epidemic. The last one occurred in the autumn and winter of 1929-1930 and the next is therefore due this autumn. In each epidemic, no fewer than 50,000 children are attacked. As this number is too great for hospital treatment, the public health committee of the London county council encourages home nursing when it can be carried out under favorable conditions. Indeed, it is difficult to say at the moment whether the council will have at its disposal sufficient accommodation in its fever hospitals to cope with the cases that may require hospital treatment. If not, it will be necessary to call on the general hospitals for assistance during the period of greatest pressure, February to April, 1932. The committee points out that in spite of such propaganda in recent years the belief still prevails that the disease can be lightly regarded and can be treated without medical advice or skilled nursing. The fact is that in the past four years, measles has caused eight times as many deaths as scarlet fever and one and one-half times as many as diphtheria. The London county council and the metropolitan borough councils are taking every precaution to cope with the imminent epidemic. The following advice has been issued: 1. Every effort should be made to postpone the contraction of the disease until after the third or preferably the fifth year, for the younger the child the greater the danger of serious complications. 2. Adequate medical, nursing and hygienic care are the most important means for preventing the complications and a fatal issue. 3. The disease is particularly fatal among children undernourished and living under unfavorable conditions. Special methods of control must be applied to prevent or ameliorate the disease in such children. The *Times* suggests that the best way to prevent infection of young children is to exclude those under the age of 5 years from Christmas or other parties, except perhaps family parties. Infection usually has its headquarters in the school. When school children come in association with infants, for example at Christmas time, the infection epidemic gathers force. If young children must go to parties they should associate only with those of the same age, under the school age.

PARIS

(From Our Regular Correspondent)

Oct. 28, 1931.

The French Congress of Hygiene

Among the topics on the program of the eighteenth French Congress of Hygiene this year was the protection of civil populations, in time of war, against war gases. Sieur, *médecin inspecteur général,* did not hesitate to say that, in spite of solemn agreements entered into by the nations of the world, it was likely that they would have recourse to the use of these gases, in case of war, without the least scruples. In the countries bordering on France, there are no doubt large supplies of gas shells—likewise in Russia. The accident that occurred in a Hamburg plant, a few years ago, costing the lives of some thirty persons, through the escape of phosphine gas, is evidence of the fact. Furthermore, all the chemical manufacturing plants that produce nitrogen compounds to be used as fertilizers can be equipped within a few hours for the intensive production of war gases. Professor Messerli of Lausanne projected some interesting illustrations, taken from German and Russian magazines, showing the drills to which the civil populations are periodically subjected in order to become accustomed to the wearing of masks for protection against war gases. Colonel Laure, representing le maréchal Pétain, explained a system of preventive measures to be adopted in case of a gas attack: rapid evacuation of the population, creation of shelters supplied with properly filtered air, masks of various kinds, special hospitals for the treatment of gassed persons, and the like. Mr. Marcelle presented a new style of mask. Professor Parisot

Sanarelli of Rome, Cantacuzène of Bucharest, Ricardo Jorge of Rio de Janeiro, Henrijean of Liége, and Madsen of Copenhagen. Professor Marchoux of the Institut Pasteur delivered an address on the present status of the question of malaria, with the indications for new drugs proposed to take the place of quinine, plasmochin and Fourneau 710. Mr. Mathis discussed the question of spirochetoses occurring in French West Africa. Mr. Mesnil spoke on trypanosomiasis, or the sleeping sickness. Mr. Dinguizli Bachir of Tunisia gave an account of the progress in that country in health work since the creation of a bureau of social hygiene.

BERLIN

(From Our Regular Correspondent)

Oct. 19, 1931.

International Congress of Women Physicians

The International League of Women Physicians, which draws its membership from twenty-six countries, assumed the task of studying some sociohygienic problems that women physicians regard as their special field of investigation. The International Congress of Women Physicians, held in Vienna under the chairmanship of the French woman physician Dr. Thuillier-Landry, attracted 200 participants. One of the topics was "The Work of the Woman Physician in Tropical Countries." Forty woman physicians from India, Persia, China, Japan, Egypt, Palestine and Africa submitted replies to the questionnaires sent out. The papers of Dr. Balfour of India and Dr. Garnier of Algeria gave an insight into the terrible hygienic conditions under which women live in tropical countries. As women physicians inspire great confidence almost everywhere, so long as they do not antagonize too sharply religious customs, a wide field of action is opened to them, particularly through the creation of consultation centers for mothers, maternity hospitals, eye policlinics, training of nurses and education of the people in hygiene.

LAWS FOR THE PROTECTION OF WORKING WOMEN

The papers of the second day, on "Laws for the Protection of Working Women," presented by Dr. Sorrentini of Rome, Dr. Bang of Oslo and Dr. Adler-Herzmark of Vienna, led to a lively discussion. The Scandinavian physicians and a portion of the English and American physicians, who support the "open-door" movement, are fighting, above all things, for the principle of equal rights for women, and therefore reject special protection through legislation. They contend that women with, for example, better pay for night work should look out for the preservation of their health themselves. The need of protecting pregnant women is not denied; but the period of protection should be regarded as a period of sickness and the sick benefits should be paid by the sick benefit associations. The better standard of living of the Nordic peoples has doubtless led to this attitude. According to the German conception, the protection of mothers is one of the chief forms of protection for working women, since without such protection they become worn out early in life through the double burden of the household and the work in a factory and are liable to become permanent invalids, and furthermore because certain industrial poisons, such as lead and benzene, injure the child in utero. Two German industrial women physicians (Krüger of Dresden and Rosenthal-Deussen of Magdeburg) called attention to the fact that the time is past when, for the sake of the principle of equal rights, the physiologic peculiarities of woman are denied. In view of the constraining force exerted by present economic conditions, it is the duty of women physicians to prevent selfish interests from exploiting the health and strength of women.

Since the greater percentage of working women are married, they take care of the home and the children. It is impossible for them to secure adequate rest. How is the pregnant textile worker to protect herself when the inexorable movements of the loom prevent her from resting between the tiresome bending and lifting? How is she to protect herself when constantly new machines and new poisons make their appearance in the industries? In view of the modest demands that women make on industry, there is danger that labor forces may be drawn into those countries that are most backward from a sociopolitical and sanitary point of view.

In closing, a resolution was adopted demanding the creation of uniform, international laws for the protection of labor; furthermore, supervision of industrial plants by specially trained industrial physicians, compulsory instruction of students in industrial hygiene and occupational diseases, far-reaching control of home work as it concerns men and women, and the carrying out of the principle of "Equal pay for equal work for men and women."

Retrenchment in Child Welfare Societies

The Deutsche Gesellschaft für Kinderheilkunde, filled with anxiety concerning the dire effects of threatened retrenchments in children's aid made necessary by the stringent economic conditions, issued at its recent meeting the following proclamation:

> With great anxiety German pediatricians look forward to the future of the German people. Already they observe in Germany and Austria conditions similar to those seen during the worst years of the war and postwar period: general debilitation, reduced resistance to disease, and increase of tuberculosis. As a result of economic distress, the birth rate has declined considerably. But—worse still—the small number of children born are seriously threatened in their development. And under these conditions, the organizations that have been slowly and laboriously built up to supply aid to sick children are to retrench? Are also hospitals to be closed; are sick children to be dismissed from hospitals before they are well, and are welfare centers to be abolished? In the face of such threatened action, the Deutsche Gesellschaft für Kinderheilkunde cannot remain silent. It warns against the great dangers that threaten the life and health of our children, and protests most decidedly against any ill planned restrictions on the aid to be given children in need. To be sure, retrenchments will be necessary; but they must not be introduced at the expense of our children, in whom lies the hope of the German people.

Suicide and Economic Conditions

It is recognized today that a large proportion of the cases of suicide are due to mental disease or to abnormal predispositions. In many countries there has been an increase of suicide since the end of the war, especially in the cities. Recent statistics represent Switzerland as having the highest percentage of suicide: 2.6 per 10,000 inhabitants; Germany with 2.5 suicides per 10,000 of population; Japan, 2.1; France, 1.9; United States, 1.6; England, 1.2, whereas in Italy, the Netherlands, Norway and Spain there is not 1 suicide per 10,000 of population. The percentage of men committing suicide has always been greater than that of women; but of late the percentage of women has been increasing, which may be due to the fact that women are more frequently engaged in occupational activities. Aside from the mental disposition of the population, no doubt the economic situation plays an important part, as Dr. Hans Dornedden, with the federal bureau of health, has emphasized in a recent number of the *Deutsche medizinische Wochenschrift*. The influence of the density of the population manifests itself in the fact that the suicide rate in the large cities is higher than elsewhere. Of especial significance was the trend of events after the war. In 1918, suicide among males of the wage-earning age groups dropped to half that of the last prewar year. The year of inflation (1923) brought a great many suicides among persons in the seventies, who through the depreciation of money values lost their means of subsistence. Later, however, suicide among aged persons became less than before the war, because the public welfare departments rendered aid to the aged. During the years 1926 and 1929, the frequency of suicide among men and women of wage-earning age was augmented because of the increased difficulty of securing employment. Thus, the statistics on suicide gregor on the surgery of the sympathetic nervous system. The public health section had one paper of outstanding interest, Dr. Sampson's admirable discussion of the etiology of blackwater fever and its relation to malaria. Considerable interest also was aroused by a preliminary report by Dr. Scroggie, medical officer of health for Port Elizabeth, on a new type of fever with some resemblance to typhus fever, observed in his area; the probability is that the disease is due to a Rickettsia body, but further bacteriologic and clinical research is required before it can be accepted as a clinical entity. The public health section held a combined meeting with the psychiatric section in which the subject of the sterilization of the unfit was discussed. The introducer, Dr. Dunston, commissioner for mentally disordered persons in the Union, made a strong plea for the compulsory sterilization of mental defectives, but an equally strong case against such sterilization was made out by his opponents. The public is interested in this subject, largely owing to the provocative statements that are made in the lay press about the high percentage of mentally defective juveniles in the population. There has been no authoritative survey of mental defectiveness in the Union and the percentages are more or less guesswork, for many of the statistical data are derived from the results of intelligence tests. The work in the other sections presented nothing of particular interest.

The Cancer Conference

A conference on cancer, convened by the administrator of the Transvaal Province at the instance of the Johannesburg Hospital Board, was held immediately after the congress and was well attended, although interest waned after the first day. The conference discussed the advisability of founding a national society for fighting cancer and decided on its establishment. The society is to be affiliated with the Imperial Cancer Research, and its work will be mainly to educate the public. Originally it was intended that the conference should also authorize the establishment of a cancer research institute, but the idea has been deprecated, as it is argued that cancer is not a disease of immediate economic importance in South Africa and that, in comparison with malaria, tuberculosis and rheumatic fever, its urgency is of less importance. The conference took no resolution on this subject or on the matter of the purchase of a radium bomb for distant treatment. The enthusiasm of the conveners had lessened by the time the conference met, and the only practical result of the meeting was the establishment of a South African anticancer society, which will probably have as long and as uneventful a life as the antimalaria societies in the past. The fact is that while the public has a reasonably active interest in cancer, it feels that there are other diseases of far greater importance in this country, which stand in need of investigation, and that we already have an excellent research institute at Johannesburg in the South Africa Institute for Medical Research, which is financed partly by the mining industry and partly by the government and is under the able directorship of Sir Spencer Lister.

Research on Malaria

The institute has just published a report by Professor Swellengrebel and his co-workers on the incidence of malaria in the Union. Professor Swellengrebel's report to the government was written in simple, popular language, and has resulted in the government taking action. Most of the recommendations which he suggested will be adopted. A malaria research institute, in charge of Dr. Annecke, is being established in the low veld, and adequate provision is being made for the treatment of malaria cases in rural areas. Professor Swellengrebel in a carefully written scientific report discussed the question of the relative immunity or toleration possessed by the aboriginal native living in malarious areas. He and his co-workers have carefully examined both the adult and the juvenile population in some of the locations situated in the most fiercely endemic districts, and have come to the conclusion that natives in such areas possess a real tolerance which is of industrial and economic importance. The report is one of the most interesting papers on malaria that have been published on this side.

JAPAN

(From Our Regular Correspondent)

Sept. 26, 1931.

Personals

Prof. Dr. Yokota, who retired as chief of hygiene in the medical department of the Tokyo Imperial University, was succeeded by Dr. Tamiya, professor in the university and a member of the Government Institute for the Study of Infectious Diseases. He had a scholarship in the Rockefeller Institute for the years 1914-1916.

Dr. Sato left Yokohama for Europe by way of America, July 16. He is a member of the lower house of the imperial diet, elected from Fukuoka prefecture, and was to attend the international conference of national representatives in Budapest in October.

Dr. Professor Kitajima, chief of the Keio Medical College and president of the Japan Physical Association, has been appointed medical superintendent of the Saiseikai Charity Foundation, succeeding the late Baron Dr. Kitasato.

Dr. Tomura, who had been chief of the health bureau of Tokyo, resigned from his post and was succeeded by Mr. Ishibashi, secretary of the bureau.

Owing to the death of Baron D. Kitasato, founder and director of the Kitasato Institute, Dr. Kitashima, former vice director, was unanimously elected director, and Dr. S. Hata was elected vice director.

Dr. Rajchman of the League of Nations arrived in Tokyo, September 10, on his way to inspect health conditions in China.

Dr. Takayama, professor in the Kyushu Imperial University, who resigned, has been appointed an emeritus professor of the university.

Dr. Miyajima, permanent commissioner of the narcotic section of the League of Nations, will be in Tokyo in the middle of November after visiting America on his way home.

Professor Gann of the Rockefeller Foundation, who recently arrived in Tokyo, visited the health bureau of the home ministry to talk over the proposed establishment of the health center and school of public health and hygiene in this country. August 6, he visited the government dietetic institute and other places, and attended the dinner party given in his honor by Mr. Adachi, home minister, in the evening.

Dr. Johnson of the University of Pittsburgh School of Medicine, who came to this country as a representative of the American Eugenic Society, was welcomed by the Japan Physical Hygienic Association at the Hitotsubashi Club at Kanda, Tokyo, July 25. At this meeting he gave a lecture on the practice of sterilizing feebleminded persons in America. His schedule for the two months' stay in this country was arranged and the home ministry gave an order that he could lecture without inconvenience at the places where he would go.

Sanatoriums and Asylums

The Yamaguchi branch of the Japan Red Cross Society is going to establish a new sanatorium at the town of Onoda. It will contain forty beds when completed.

The Wakamatsu Sanatorium, which is in Kanazawa City and has sixty beds at present, is also going to enlarge the capacity by twenty beds.

The Satojima Leprosy Asylum, which has accommodations for 550 patients at present, is going to enlarge the capacity by 450 additional beds.

Newton Whitney Wear, Bellingham, Wash.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; member of the Washington State Medical Association; county coroner; aged 52; on the staff of St. Joseph's Hospital, where he died, September 8, of leukemia.

Edmund Farnham Curry ⊕ Fall River, Mass.; Harvard University Medical School, Boston, 1896; member of the New England Pediatric Society; formerly on the staff of the Fall River General Hospital; aged 58; died suddenly, October 29, in the Union Hospital, of coronary occlusion.

Leonard Reu, Buffalo; University of Buffalo School of Medicine, 1904; member of the Medical Society of the State of New York, and the American Roentgen Ray Society; aged 52; died, November 2, of miliary and pulmonary tuberculosis, chronic endocarditis and mitral insufficiency.

James Patton Taylor, Wartrace, Tenn.; Vanderbilt University School of Medicine, Nashville, 1896; member of the Tennessee State Medical Association; aged 63; was instantly killed, November 1, when the automobile in which he was driving was struck by a train.

Thomas Carr Avary, Portland, Ore.; Southern Medical College, Atlanta, 1889; member of the Oregon State Medical Society; for many years health officer of Skamania County, Wash.; aged 72; died, October 25, in the Good Samaritan Hospital, of lobar pneumonia.

Marcus F. Squier, Harrison, N. J.; College of Physicians and Surgeons in the City of New York, 1872; member of the Medical Society of New Jersey; formerly member of the board of health; aged 80; died, November 1, of angina pectoris and myocarditis.

Harlin H. Smith, Calico Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1906; member of the Arkansas Medical Society; aged 50; died, October 14, in the Baptist State Hospital, Little Rock, of cerebral hemorrhage.

Manley Arphew Siske, Kings Park, N. Y.; University of Virginia Department of Medicine, Charlottesville, 1927; senior assistant physician on the medical staff of the Kings Park State Hospital; aged 34; was accidentally drowned, October 20.

Joseph Amidee Charest, Nashua, N. H.; Tufts College Medical School, Boston, 1896; member of the New Hampshire Medical Society; on the staffs of St. Joseph's Hospital and the Nashua Memorial Hospital; aged 64; died, October 20.

Harold Lowell Reinhard ⊕ Portsmouth, Ohio; Ohio State University College of Medicine, Columbus, 1927; aged 32; on the staffs of the Mercy Hospital and the Portsmouth General Hospital, where he died, November 3, of spinal meningitis.

William Baird Henderson ⊕ Philipsburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1886; member of the American College of Surgeons; chief of the staff of the State Hospital; aged 71; died, October 30.

Henry Hamilton Taylor, San Saba, Texas; Memphis (Tenn.) Hospital Medical College, 1902; member of the State Medical Association of Texas; president of the school board; county health officer; aged 51; died, October 11.

Thomas Brinsley Foley, Boston; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1903; member of the Massachusetts Medical Society; aged 52; died, November 12, of carcinoma of the rectum and bladder.

William Martin Bradley, Mayesville, S. C.; Baltimore University School of Medicine, 1900; member of the South Carolina Medical Association; aged 57; died, October 28, of myocarditis following influenza and pleurisy.

Emma J. Batchelor, Cincinnati; Presbyterian Hospital and Woman's Medical College, Cincinnati, 1894; member of the Ohio State Medical Association; aged 77; died, November 4, of coronary embolism and arteriosclerosis.

Frederick John Mitchell, St. Paul; Hahnemann Medical College and Hospital, Chicago, 1903; Northwestern University Medical School, Chicago, 1909; aged 52; was accidentally shot and killed, October 18, while hunting.

William L. Cuddeback, Port Jervis, N. Y.; Bellevue Hospital Medical College, New York, 1876; member of the Medical Society of the State of New York; formerly bank president; aged 77; died, October 31.

Joseph Jackson Skelton, Huntington, W. Va.; University of Louisville (Ky.) School of Medicine, 1902; aged 67; was instantly killed, October 18, when the automobile in which he was driving was struck by a train.

Henry Howard Mason, Butler, Ala.; University of Alabama Medical Department, Mobile, 1903; member of the Medical Association of the State of Alabama; aged 58; died, October 29, of cerebral hemorrhage.

Walter Tracy Fuller, Boston; Boston University School of Medicine, 1895; member of the city health department; aged 68; died, October 29, in the City Hospital, of intestinal obstruction and chronic myocarditis.

Edward Gustine Higgins, Melrose, Wis.; Milwaukee Medical College, 1904; member of the State Medical Society of Wisconsin; aged 55; died, October 28, in Rochester, Minn., of carcinoma of the rectum.

William Hanford Todd, Dobbs Ferry, N. Y.; Medical Department of Columbia College, New York, 1890; at one time health officer of the villages of Dobbs Ferry and Irvington; aged 70; died, October 21.

James Henry Meek, Bellaire, Ohio; Ohio Medical University, Columbus, 1898; member of the Ohio State Medical Association; formerly on the staff of the City Hospital; aged 69; died, October 24.

Roy B. Leach ⊕ Joliet, Ill.; Rush Medical College, Chicago, 1901; aged 55; on the staffs of St. Joseph's Hospital and the Silver Cross Hospital, where he died, November 1, of chronic myocarditis.

William August Ocker, Indianapolis; Cincinnati College of Medicine and Surgery, 1897; director of physical education in the public schools of Indianapolis; aged 61; died, November 13, of heart disease.

Wesley Van Nette, Clyde, Ohio; Northwestern Ohio Medical College, Toledo, 1890; member of the Ohio State Medical Association; aged 75; died, November 5, of a sarcoma in the left groin.

Robert Coltman, Jr., Washington, D. C.; Jefferson Medical College of Philadelphia, 1881; aged 69; died, November 3, of chronic interstitial nephritis, myocarditis and acute dilatation of the heart.

William Sherman Warren, Jacobsburg, Ohio; Starling Medical College, Columbus, 1896; member of the Ohio State Medical Association; aged 54; died, November 8, of cerebral hemorrhage.

George W. Bogart, New York; Medical Department of the University of the City of New York, 1890; member of the Medical Society of the State of New York; aged 72; died, October 31.

Oscar William Lowery, Des Moines, Iowa; College of Physicians and Surgeons, Keokuk, 1873; member of the Iowa State Medical Society; Civil War veteran; aged 86; died, October 18.

W. D. Foster, Gravette, Ark. (licensed, Arkansas, 1903); formerly mayor of Gravette and justice of the peace; aged 78; died, October 29, in Topeka, Kan., of influenza and bronchopneumonia.

William Fleming Shellhorse, Jacksonville, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1916; aged 55; died, October 30, of diabetes mellitus, carbuncle and lobar pneumonia.

Herbert Nelson Leete ⊕ Twin Falls, Idaho; Rush Medical College, Chicago, 1904; aged 57; died, October 1, in the County Hospital of septicemia following a surgical infection of the hand.

Edward Pisko ⊕ New York; University of Vienna Faculty of Medicine, Vienna, Austria, 1888; on the staff of the Hospital for Joint Diseases; aged 69; died, November 11, of heart disease.

Robert Wesley Frey, Trenton, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1887; member of the Kentucky State Medical Association; aged 70; died, October 10.

Miram Gardner, Cedar Falls, Iowa; University of Michigan Medical School, Ann Arbor, 1886; member of the Medical Society of the State of New York; aged 79; died, September 17.

Elinor Van Buskirk Cummins, New York; Boston University School of Medicine, 1907; University of Vienna Faculty of Medicine, Vienna, Austria, 1908; aged 53; died, October 20.

William E. Howley ⊕ New York; Medical Department of the University of the City of New York, 1891; aged 65; on the staff of St. Francis Hospital, where he died, September 28.

Maxwell Lewis Volk, New York; Columbia University College of Physicians and Surgeons, New York, 1905; aged 47; died, September 18, of cerebral hemorrhage and edema.

John Douglas Simpson, Minneapolis; Chicago Medical College, 1881; an affiliate Fellow of the American Medical Association; aged 73; died, October 18, of chronic endocarditis.

Arthur Allison Howard, Boston; Harvard University Medical School, Boston, 1909; aged 52; died, October 7, in the City Hospital, of arteriosclerosis and chronic myocarditis.

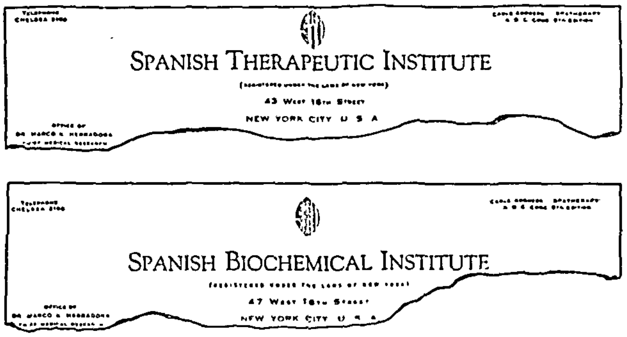
in scientific therapy. The report, which occupied nearly two pages of The Journal, appeared in the issue of April 23, 1923, after a year had been devoted to a consideration of the products.

The Journal for November 21, 1925, again reported briefly on the Herradora products and again reminded physicians that these products were unacceptable because of unwarranted and unsubstantiated statements and because of the complex and indefinite mixtures of drugs represented by the Herradora preparations.

In 1925, a questionnaire on stationery headed "Marco A. Herradora, M.D.," was sent to osteopaths, who were addressed as "Dear Doctor." One of the questions propounded to those osteopaths who received Herradora's questionnaire was whether they considered that osteopaths who had the M.D. degree, in addition to the "D.O." degree, had benefited either themselves or the osteopathic "profession."

In 1930, Herradora was reported as having sent a letter to a physician asking him if he would appreciate the opportunity of becoming "one of the physicians of a new Club" which he (Herradora) was helping to organize. The doctor who *would* appreciate such an opportunity would have "to contribute $1,000 as a small part toward organization expenses and equipment of the medical division."

The *Unité Pharmaceutique Française* was incorporated under the laws of Delaware, and the public has been solicited to purchase stock. The stock-selling scheme was of the familiar type—a bonus of shares of common stock to be given free to those who purchased five shares of the "7 per cent cumulative preferred at $20 a share." The *Unité Pharmaceutique Française* puts out a line of "patent medicines": "Sonedine" for rheumatism, neuralgia and gout; "Exhaline" for asthma; "Rubiline" for gallstones; "Antisol," to "aid in keeping the kidneys clean"; "Conchaline" for the sexual rejuvenation of elderly people; "Dodgeline" for tonsillitis; "Madreline" to purify the blood, and "Jenniline" for nasal catarrh and sinusitis.


SPANISH THERAPEUTIC INSTITUTE

43 West 16th Street

NEW YORK CITY U S A

SPANISH BIOCHEMICAL INSTITUTE

47 West 16th Street

NEW YORK CITY U S A

Photographic reproduction (reduced) of the letterheads of the Spanish Therapeutic Institute which later became the Spanish Biochemical Institute. This concern puts out "Vitamineralis" described as "The material from which life is created."

Herradora is described on some of the letterheads, as "Chief Medical Research" of the "Spanish Biochemical Institute," which was earlier known as the "Spanish Therapeutic Institute"—a name which violated local laws and had to be changed. The Spanish Biochemical Institute puts out "Vitamineralis," which is said to be "the Material from Which Life is Created." According to an advertising circular:

> "Vitamineralis is a combination of *sterolized minerals* similar to those entering the composition of the human body. Due to the fact that *Vitamineralis* contains *calcium, phosphorus, fluorine, potassium, sulphur, silicon, iodine, magnesium, iron, sodium, manganese, chlorine* and other minerals, it beneficially influences daily replenishment and reconstruction of the body. These minerals by renovating organic forces protect the individual constitution from decay that comes from exhaustion and diminishment of these life substances in the human economy." [Italics in the original.—Ed.]

The circular then goes on to describe the "Function of Minerals" in "*preserving* life." The circular states that such minerals should "never be given separately, alone, but in combination with the others, *simultaneously, in adequate proportions, at the same time.*" [Italics as in original.—Ed.]

The reader is then given some interesting alleged information regarding certain elements, a paragraph being given to each element. We can quote from but part of this material:

> "*Fluorine* . . . When the feet and arm pits produce disagreeable odors, it will be an evidence of the need of fluorine in the system. Carbon counteracts fluorine, calcium and iron."
>
> "*Potassium* . . . Its exhibition in the body will prevent constipation, nervous disorders, general weakness."
>
> "*Sulphur* . . . Through its purifying qualities it clears the skin, preserving same from infection. Carbon controls sulphur."
>
> "*Silicon* . . . *is necessary to those doing mental* work. Carbon counteracts silicon."
>
> "*Magnesium* . . . When the system is lacking in magnesium, insanity, neurasthenia and hysteria may be the consequences."
>
> "*Iron* . . . Yes, iron will help blood forming organs but unless properly *vitaminized and sterolized* it will not be properly assimilated *by the body* and *may* also *perturb* the *kidney* function very severely. . . . It is a brain food very necessary to people doing mental work. . . . Its indiscriminate use causes stupidity, atrophia, plethora and many functional derangements such as hemorrhages and others."
>
> "*Sodium* . . . used without due control will cause the same effect to the circulatory vessels as sea water does cause to an iron rod."
>
> "*Manganese* . . . acting like the dark chamber of a photographic studio is the connecting element of the organism of brain matter serving as a point of contact to its dynamic emanation. It flashes thoughts as a regenerative constructive power of brain transmission . . . It helps to give stamina and determination of character."
>
> "*Chlorine* . . . arrests the progress of muco-purulent formations and catarrh, albuminuria, obesity and protects the nervous system. Chlorine is controlled by hydrogen, nitrogen and carbon."
>
> "*Carbon* . . . Used indiscriminately it interferes with iron assimilation, causing an acid reaction that is damaging to the teeth, bones, brain and digestion producing auto-intoxication, goitre, heart involvement and serious impairments of mental forces. When deficient it causes enduration, *atrophy*, eczema."

In view of the marvelous effects that are to be expected from the use of this latest addition to the field of catholicons, it is interesting to learn that "Vitamineralis is now served at the best homes of learned intelligent people and will enter the high-class soda fountains as a wholesome good habit."

A few weeks ago, an inquiry came in to the Bureau of Investigation regarding the Spanish Biochemical Institute, reading in part as follows:

> "Do you have an acquaintance with the activities of the Spanish Biochemical Institute, which is located at 47 West 16th Street, New York, N. Y.? If so, we will be very appreciative of all the facts that you can supply. The Spanish Biochemical Institute is introducing commercially a product, baptized 'Vitamineralis,' said to be 'the life substance,' which is described at length, in quaint style, in the enclosed circular. It is reported that the literature of the Spanish Biochemical Institute is now being distributed among food manufacturers and especially among carbonated beverage producers. Letters from the Spanish Biochemical Institute are usually signed by Marco A. Herradora, Director."

Our correspondent further stated that his inquiry was prompted by a letter that Herradora had written to a business concern in connection with the use of Vitamineralis, and that in his letter, Herradora had thus described himself:

> "'In regards to the writer's [Herradora's] qualifications, you will find his name listed in the enclosed booklets as a member in good standing of the Medical Association of the Greater City of New York, affiliated with the Academy of Medicine, also as the Chairman of the Hospital Committee of the International Association of Physicians, Surgeons and Dentists, member in good standing of the Yorkville Medical Society. This in no way should be construed as the writer doing clinical medical work, but exclusively devoted to medical research. . . . The undersigned, who has devoted more than twenty years of study and research to subjects of this nature, is prepared to furnish to you unquestionable references as to his integrity and scientific standing.'"

Herradora's claim, that he is a member in good standing of the Medical Association of the Greater City of New York, astonishing as it may seem, is correct. This in spite of the fact that that organization has been advised of Herradora's past and present activities in the nostrum field and has been sent a photostatic copy of a letter from the Rector of the University of Barcelona, who, in response to an inquiry from the American Medical Association, declared definitely that no man by the name of Marco Aurelio Herradora was a graduate in medicine of the University of Barcelona.

ALOPECIA, EXFOLIATIVE DERMATITIS AND SYPHILIS

To the Editor:—I have a patient who came to me with a skin condition which I diagnosed as exfoliative dermatitis based on a history of treatment for syphilis. In addition to the dermatitis he has completely lost the hair of the scalp, face, eyebrows and lids. This condition is of about eight weeks' duration. I should like to be advised as to whether or not there is any chance of stimulating a new growth; also the procedure. When the patient first came to me, seven weeks ago, I gave him daily for fourteen days intravenous injections of sodium thiosulphate, and other treatment was symptomatic. What should the antisyphilitic treatment be in this case? Please omit name.

M.D., Illinois.

Answer.—The alopecia accompanying exfoliative dermatitis as described in this patient may be an alopecia totalis, coincidental with, or associated with, the intoxication process that brought on the dermatitis. If such is the case, the outlook for at least a temporary recovery of hair spontaneously as the dermatitic process clears up and the patient regains normal health is fairly good. It is impossible, however, to offer any assurance that the hair will not be again completely lost without any nécessary association with the dermatitis. The correspondent does not give sufficient detail to judge whether the exfoliative dermatitis is actually a result of treatment for syphilis or whether the patient may not even present the exfoliative process with thinning or relative absence of the hair that is occasionally observed in the so-called ichthyosiform erythroderma. This matter, however, is a congenital affair and could hardly be confused with the picture described.

Stimulation of a new growth of hair may be to some extent aided by vigorous exposure of the scalp to the quartz mercury vapor lamp. It is inadvisable in view of the exfoliative dermatitis to use local irritants which constitute the next alternative. With reference to further antisyphilitic treatment, it is impossible to base any decision on the facts given by the correspondent as there are no particulars with reference to the stage and character of the syphilitic infection, or of the previous treatment. It may at least be said, however, that a careful patch testing of the patient for sensitivity to the arsphenamines should be conducted by some one familiar with this type of work, and that if such patch testing reveals a specific sensitivity to the arsphenamines these drugs at least should be permanently debarred from the therapeutic regimen.

CONSTIPATION IN A BREAST FED BABY

To the Editor:—Will you kindly inform me as to how to treat constipation in a breast fed baby? The child is 5 months old, weighs 13 pounds and 12 ounces (6 Kg.), and appears to be perfectly normal otherwise, except for a persistent and almost intractable constipation. Rectal examination gives negative results. The child apparently does not have any pains or cramps that would lead one to suspect a chronic obstruction. Some suggestion as to treatment would be greatly appreciated. Please omit name.

M.D., South Dakota.

Answer.—Constipation in a breast fed baby is a different thing from constipation in a bottle fed baby. In the latter, the movements are often hard; in the breast fed baby they are never so. The treatment, therefore, is different. Commonly, constipation in the breast fed baby is due to the fact that the child is not getting enough food and, if an ample supply of milk, cereals, vegetable purées and orange juice is given, the condition will commonly remedy itself. If it does not, there is no objection to the use of a nonirritating suppository, such as one made of gluten or soap covered with oil or petrolatum. If the constipation still persists in spite of the additional food, there is no objection to giving liquid petrolatum or magnesia magma daily up to the necessary amount.

In the purely breast fed baby there is no objection to letting the baby go two, or sometimes even three, days before it has a movement. That there is no mechanical obstruction in this case is evident from the lack of pain or "cramps" and abdominal distention.

TYMPANITES

To the Editor:—Could you refer me to a source of information on tympanites? I have a patient, aged 50, with a history of chronic constipation for years, and pain in the lower left quadrant, with a spastic colitis. With rest, hot packs, diluted hydrochloric acid, atropine, bacillus acidophilus milk and lactose, and a bulky diet and oil enemas, the stools are fairly well formed and the spastic colon is improved. However, even after an adequate evacuation, he is troubled with gas. I am under the impression that the putrefaction of protein causes this tympanites, but a restricted protein intake has been of no benefit. Could you suggest a further means of therapy? Please omit name.

M.D., Nebraska.

Answer.—Tympanites is ordinarily considered a chronic accumulation of gases in the intestinal canal. Briefly, the gases may originate from exogenous causes, such as aerophagy in nervous individuals or in rapid eaters, or from endogenous sources, principally the result of the action of bacteria on proteins, carbohydrate and fats. Impeded expulsion of gases, even though the quantity may be normal, can occur with any form of chronic constipation, and in every case a cause for intestinal stenosis must be sought. Cardiac decompensation and general arteriosclerosis are further causes.

In regard to treatment, the etiologic agent should be sought and treated if found. Changes in the constituents of the diet are recommended, such as low protein, low fat or low carbohydrate. Of the latter, rye bread, vegetables rich in cellulose, and potatoes are particularly harmful. Dietary changes depend on whether putrefaction or fermentation are the causes of the gas. Medicinal measures, aside from hydrochloric acid, atropine or atropine-like substances, physostigmine and pituitary solution, have been shown to be of little avail. Colon irrigations with various antiseptic substances have been successful.

DILATED VESSELS IN VAGINA FOLLOWING RADIUM TREATMENT

To the Editor:—I have a patient who had radium treatment for uterine fibroids and an amputation of the cervix five years ago. Since that time she has complained of tenderness and pain in the pelvis and extreme sensitiveness throughout the birth canal. She is unable to have intercourse on account of the pain. A vaginal examination is practically impossible. The vulva and the vagina are both covered with enlarged venules. There are no palpable enlargements in the pelvis and no discharge to speak of. Twenty years ago she had both breasts removed for suspicious malignancy. She is 49 years old. She has not menstruated for three years. Can you tell me whether the hypersensitiveness is the result of radium treatment? Can you suggest any treatment in this case? Kindly omit name.

M.D., Michigan.

Answer.—The condition of dilated vessels of the vagina and vulva is not common following radiotherapy, though the close time relationship is suggestive in this case.

The sequelae that are due to irradiation are dependent largely on the dosage, filtration and the age of the patient and are the result of varying amounts of cell and tissue destruction with resultant scar formation if and when healing occurs. Any or all tissues within the radius of activity of the radium may be involved. The cicatricial contraction that may result could cause circulatory obstruction with dilatation of the terminal vessels. These tissue changes following the use of radium are not infrequently associated with pain and tenderness as well as narrowing of the vaginal lumen, especially in those cases in which the vagina has been exposed to the effect of the radium.

It is also possible that there may be some interference with uterine and vaginal drainage as the result of scar formation following the cervical operation or the radium treatment.

It would seem necessary to determine even under anesthesia whether or not there are any strictures of the vagina or cervix which are making difficulty. If there are they should be carefully dilated, or, if this cannot be accomplished, other necessary steps should be taken.

.The condition might of course be something that is entirely unrelated to either the operation or the radium treatment.

POLIOMYELITIS AND PREGNANCY

To the Editor:—I should like to gain information regarding a case of poliomyelitis in a woman, aged 20, with a pregnancy of six months' duration. At the end of the third day the patient has no paralysis. She received 20 cc. of convalescent serum the first day and 15 cc. the second. Does the combination with pregnancy change the ordinary picture of the disease concerning the mother and what can be expected in the baby if the pregnancy terminates normally? Will there be any paralysis in the child, if the mother does or does not have paralysis?

C. J. Lohmann, M.D., Burlington, Iowa.

Answer.—Although there are no statistics available on the occurrence of poliomyelitis during pregnancy, some observers have the impression that the disease occurs in the later months of pregnancy more often than would be expected if it were only a chance coincidence. If this proves to be the case, it would suggest that some physiologic alteration during pregnancy may affect susceptibility to infection with poliomyelitis.

Paralysis of certain muscle groups may necessitate instrumental aid in delivery. However, some of the observed cases, even with extensive paralysis, have terminated in normal delivery of a normal child. In one instance in which delivery took place while the mother was in the acute stage of poliomyelitis, the child is said to have developed the disease after birth; but it is not clear whether infection was contracted in utero or after birth.

The Harvard Infantile Paralysis Commission is studying this question and would be glad to have reports of any such cases.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 11. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Clinical.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Boston, Dec. 21. Sec., Dr. Wm. H. Wilder, 122 S. Michigan Blvd., Chicago.

ARIZONA: Phoenix, Jan. 5-6. Sec., Dr. B. M. Berger, 12 North Central Ave., Phoenix.

CALIFORNIA: *Reciprocity.* Los Angeles and San Francisco, Dec. 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, Jan. 5. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Dec. 29-30. *Regular.* Washington, Jan. 11. Sec., Dr. W. C. Fowler, District Bldg., Washington.

HAWAII: Honolulu, Jan. 11-14. Sec., Dr. James A. Morgan, Room 48, Young Bldg., Honolulu.

LOUISIANA: New Orleans, Dec. 10-12. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MARYLAND: *Homeopathic.* Dec. 17-18. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 5-6. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, Jan. 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Medical Arts Bldg., St. Paul.

NEBRASKA: *Basic Science.* Lincoln, Jan. 12-13. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NORTH DAKOTA: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, Grand Forks.

OREGON: Portland, Jan. 5-7. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 5-9. Sec., Mr. Charles D. Koch, Harrisburg.

RHODE ISLAND: Providence, Jan. 7-8. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

SOUTH DAKOTA: The St. Charles Hotel, Pierre, Jan. 19-20. Dir., Dr. H. R. Kenaston, Bonesteel.

TENNESSEE: Memphis, Dec. 18-19. Sec., Dr. Alfred B. DeLoach, Medical Arts Bldg., Memphis.

WASHINGTON: *Basic Science.* Seattle, Jan. 14-15. *Regular.* Seattle, Jan. 18-19. Dir., Mr. Charles Maybury, Olympia.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 19. Sec., Prof. Robert N. Bauer, 3414 West Wisconsin Ave., Milwaukee. *Regular.* Madison, Jan. 12-14. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

Oregon July Examination

Dr. C. J. McCusker, secretary, Oregon State Board of Medical Examiners, reports the written examination held at Portland, July 7-9, 1931. The examination covered 11 subjects. An average of 75 per cent was required to pass. Thirty-five candidates were examined, 34 of whom passed and one failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1931)	88.1, 88.4, 89.8
State University of Iowa College of Medicine		(1930)	81.2
University of Michigan Medical School		(1930)	90.4
Creighton University School of Medicine		(1930)	88.1
University of Nebraska College of Medicine		(1931)	83.5
University of Oregon Medical School		(1928)	86, (1930) 87.1, 88.3, 89.1, (1931) 81.2, 81.4, 81.8, 83.1, 83.6, 83.7, 84.4, 85.5, 86.2, 86.5, 86.6, 86.6, 86.7, 87.2, 87.6, 87.6, 88.4, 89.5, 91, 92.1, 93
Osteopaths			81.9, 83.6
	FAILED		
Osteopath *			

Dr. McCusker also reports 8 physicians licensed by reciprocity with other states and 3 physicians licensed by endorsement from July 8 to Sept. 8, 1931. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Denver and Gross College of Medicine, Colorado		(1909)	Colorado
Atlanta School of Medicine, Georgia		(1908)	Georgia
State University of Iowa College of Medicine		(1929)	Iowa
University Medical College of Kansas City, Missouri		(1906)	Kansas
Washington University School of Medicine		(1928)	Missouri
University of Nebraska College of Medicine		(1923)	Nebraska
University of Oregon Medical School		(1929)	California, Indiana

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School		(1925)	N. B. M. Ex.
University of Oregon Medical School		(1930, 2)	N. B. M. Ex.

* Reexamined in four subjects. Failed in three.

Nevada Reciprocity Report

Dr. Edward E. Hamer, secretary, Nevada State Board of Medical Examiners, reports 7 physicians licensed by reciprocity with other states and 2 physicians licensed by the endorsement of credentials from June 13 to Aug. 3, 1931. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Cooper Medical College, San Francisco		(1907)	California
Hahnemann Med. Coll. of the Pacific, San Francisco		(1914)	Washington
University of Louisville Medical Department		(1915)	Montana
Baltimore Medical College		(1895)	Penna.
University of Nebraska College of Medicine		(1925)	Nebraska
Memphis Hospital Medical College		(1910)	Mississippi
Licentiate of the Royal College of Physicians and the Royal College of Surgeons of Ireland		(1908)	California

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Columbia University College of Phys. and Surgs.		(1929)	N. B. M. Ex.
University of Toronto Faculty of Medicine		(1927)	N. B. M. Ex.

Book Notices

Motives and Mechanisms of the Mind: An Introduction to Psychopathology and Applied Psychology. By E. Graham Howe, M.B., B.S., D P M., Honorary Physician, Tavistock Square Clinic for Functional Nervous Disorders. Cloth. Price, 10s. 6d. Pp. 260. London: The Lancet, Ltd., 1931.

The twelve chapters of this book have appeared in serial form in the *Lancet.* The book is refreshing as a synthesis of the approach toward the patient of that venerable and vanishing figure in medicine, the family physician, and of the modern psychotherapeutist imbued with dynamic concepts of human motivation. Perhaps the key-note of the volume is struck, properly, in the quotation from Ecclesiasticus on the fly-leaf, "He that sinneth before his Maker, let him fall into the hands of the physician." Modestly disclaiming anything "more than a little originality save in certain details of exposition," Dr. Howe presents a clinician's digest of the material of modern psychopathology, gleaned primarily from the field of psychoanalysis. The language is rather pictorial, to borrow a term from the author, and diagrams are used freely in the exposition of his conception of emotional development and to portray such mechanisms as projection, ambivalence, and symptom formation as solution of conflict.

The author makes an earnest attempt to summarize and to classify his material as he proceeds. His method of exposition may be illustrated by a quotation from the summary of his chapter on "Love: The Rôle of the Mother":

> It is the unconscious attempt to find short cuts [for solution of the Oedipus situation] which provides the material of psychopathology, and the symptoms of the disordered mind.
>
> The first short cut, described as "fixation compromise," is an attempt to have the best of worlds, which very nearly succeeds, but it is at the expense of dissociation, conflict and phantasy. . . . The second short cut method is by emotional repression, which may give rise to sexual negativism (frigidity), a reversal of the feeling tone from love to hate (as occurs in the misogynist) or to the pseudo-intellectualism which is the psychopathology of the "high-brow." . . . The third short cut is found in the psychology of the prig. . . . This is an example of overcompensation and, as a reaction to the problems of the eternal triangle, may be described as "Messianic identification."

Brief synopses of case histories are used liberally by way of demonstration.

The arrangement of material is confusing. If the book is to be regarded as an introduction to psychopathology, it would appear that clearer definition of the terms and concepts utilized throughout the book should be achieved early. As a simple example, one finds "repression" first referred to on page 29, with the statement that suppression "is not to be confused with repression, which is an unconscious and automatic process." Next "repressed homosexuality" is discussed (page 87). On page 120, reference is made to "repression of the sex factor" in calf-love, and there is a short, incomplete section on repression (page 125). On page 188, repression is discussed in one paragraph as one of six listed defense mechanisms. Unfortunately, a typographic error in which the term suppression is used instead of repression confuses the meaning for the uninitiated. Finally, in a section on conflicting wishes (page 211), "conscious suppression" and "unconscious repression" are cited as the two methods of resolving conflict. An initial adequate

Acquired Immunity in Syphilis, by Dr. Alan M. Chesney, associate professor of medicine, Johns Hopkins School of Medicine, Baltimore; Relations of the Activity of the Pituitary and Thyroid Glands, by Dr. Philip E. Smith, professor of anatomy, Columbia University College of Physicians and Surgeons, New York; A Chemical View of the Pathogenesis of Tuberculosis, by Dr. Esmond R. Long, professor of pathology, University of Chicago School of Medicine, Chicago; Electrical Phenomena in the Living Cell, by Dr. Winthrop J. V. Osterhout, member of the Rockefeller Institute for Medical Research, New York; Progress of Medicine During the Past Twenty-Five Years as Exemplified by the Harvey Society Lectures, by Dr. Rufus Cole, director of the Hospital of the Rockefeller Institute, New York, and the Harvey Society by Dr. Graham Lusk, professor of physiology, Cornell University Medical College, New York. The first twenty-five volumes of these lectures have constituted a record of scientific research. The history of the society, as told by Dr. Graham Lusk at the supper in celebration of its twenty-fifth anniversary, is a most interesting medical anecdote which needs to be read in its original form to be appreciated. The society seems to have arisen in the brains of Dr. Graham Lusk, Mrs. Anna Bowman Dodd and Dr. Samuel J. Meltzer. In its formation many distinguished men took part. The first lecture was given in German by Prof. Hans Horst Meyer of Vienna, and the society was introduced to the public by Dr. C. A. Dana. Because it contains an index to the first twenty-five volumes of the society, the present volume is especially valuable.

Die medikamentöse und allgemeine Behandlung der Ohrenkrankheiten. Von Dr. Conrad Stein, Privatdozent an der Universität Wien. Paper. Price, 6.90 marks. Pp. 103. Vienna: Julius Springer, 1931.

Any sound and rational program of therapeusis, even if it relates to special diseases such as those of the ear, as in Dr. Stein's monograph, must rest on a sound knowledge of the causes of those diseases. Furthermore, every physician prescribing treatment must through good judgment and experience (and this includes the experience of others in his own field) be aware of those conditions in which treatment cannot possibly cure but is only palliative. In general, the author has done well. He takes into consideration all forms of therapy and not only those relying on medicaments. There seems to be, as is so generally the case on the continent, a reliance on proprietary remedies without a careful checking up on the part of any official body of the claims of the various manufacturers.

Surgeon of the Seas: The Adventurous Life of Surgeon General Jonathan M. Foltz in the Days of Wooden Ships. Told from His Notes of the Moment by Charles S. Foltz. Cloth. Price, $3.75. Pp. 351, with illustrations. Indianapolis: Bobbs-Merrill Company, 1931.

Jonathan M. Foltz was commissioned assistant surgeon of the navy by President Jackson in 1831. He became surgeon general of the navy under President Grant. His work took him to the coast of Sumatra in pursuit of pirates, and to Mexico and other countries. In the Civil War he was fleet surgeon on the *Farragut* on the Mississippi River. After the war he accompanied Farragut on the cruise around the world. The present volume is constructed by the author from notes and letters. It is an engaging narrative with a special interest for physicians. The personal relationships of Dr. Foltz to Polk and Buchanan and to other notables afford a striking insight into conditions during the administrations of these presidents. The book is provided with interesting illustrations and an adequate index.

Proceedings of the Second International Congress for Sex Research, London, 1930. Edited by A. W. Greenwood. Cloth. Price, 21/-. Pp. 637, with illustrations. Edinburgh: Oliver & Boyd, 1931.

This volume is divided into five parts, dealing with biology, hormones, therapy, contraception and sociology. Practically all the studies here concerned are of scientific value. In the second section, particular attention is paid to the male and the female sex hormone and also to pituitary hormones. Contributions by Aschheim, Koch, Funk, Frank and Moore indicate the basic character of this material. As is usually the case, the least critical portions of the book are those dealing with therapy. Contributions on theelin and menformon are especially uncritical. The articles in this collection are in English, French, German and Italian.

The Black Death and Men of Learning. *By Anna Montgomery Campbell*, Assistant Professor of History, New Jersey College for Women. Cloth. Price, $3. Pp. 210. New York: Columbia University Press, 1931.

The great plague, known as black death, which swept across Europe in the fourteenth century influenced every phase of human life. Several volumes have been published concerning its manifestations. With the scientific knowledge of that day, the plague was believed to be due to some divine manifestation of wrath. The present volume deals with the effects of the plague on science. Chapter 4 concerns particularly its effects in the field of medicine, surgery and hygiene. There is a discussion of the members of the medical faculty who died of the disease and of attempts made through sanitation and hygiene to control the pestilence. Other chapters concern the effects of the plague on universities and schools and on other intellectual fields. A carefully compiled bibliography and index complete this excellent contribution to the history of science.

A System of Bacteriology in Relation to Medicine. Volume IX. By J. A. Arkwright, S. L. Baker, and others. Medical Research Council. Cloth. Price, £1 1s. 0d. Pp. 364, with 86 illustrations. London: His Majesty's Stationery Office, 1931.

This volume completes a system of bacteriology prepared under the auspices of the Bacteriological Committee of the Medical Research Council. It includes sections on the design of bacteriologic laboratories, the microscopic demonstration of bacteria, the preparation of culture mediums, such technical questions as the determination of p_H, the aerobic and anaerobic methods, isolation of single cells, filtration, bacteriophage, serology, anaphylaxis, breeding and care of laboratory animals, vitamin A deficiency, ultraviolet therapy, electricity, and the determination of the value of disinfectants. The book includes also the general index to the nine volumes. The material in this book is on a par with that in the preceding volumes and makes the study complete. No modern school or institution devoted primarily to bacteriologic studies can afford to be without this system.

Confessio Medici. By Stephen Paget, F.R.C.S. Reissued, 1931. Cloth. Price, $2. Pp. 158. New York: Macmillan Company, 1931.

This volume, first published in 1900, is now reprinted because of the demand for these excellent essays. To the physician, the nurse or any worker in the field of health the essays are inspirational. The essay for students establishes a point of view. The essay on Paré is a beautiful example of writing in medical history. The essays on medical practice, its rewards and its dissatisfactions will strike a sympathetic chord in every physician. The final essays on "Retirement" and "The Very End" lead gradually to the epilogue on the privileges of the physician:

> "The natural dignity of our work, its unembarrassed kindness, its insight into life, its hold on science—for these privileges, and for all that they bring with them, up and up, high over the top of the tree, the very heavens open, preaching thankfulness. Circle above circle, the reasons for it are established, out of the reach of words."

Gewerbekrankheiten: Klinische Grundlagen der 22 meldepflichtigen Berufskrankheiten. Von Dr. med. Ernst W. Baader, Dozent für Berufskrankheiten an der Universität Berlin. Paper. Price, 9 marks. Pp. 144, with 29 illustrations. Berlin: Urban & Schwarzenberg, 1931.

Most books on occupational diseases are ponderous volumes, with far too many theoretical considerations to meet the needs of the general practitioner in industrial communities, who, however, is the one who sees the greatest number of cases of trade disease. Here is a small, well written booklet, embodying the essentials of medical requirements on the twenty-two occupational diseases compensable in the author's country. According to the preface, "The study of the relation between occupation and sickness is one of the most interesting and promising fields of future medicine, which, unfortunately, up to the present time, has only lightly been touched on by the general practitioner. The necessity for an increased knowledge of toxic work substances is, especially in industrial countries like Germany, most profound." The author ably discusses the practical aspects of the commoner trade diseases. He includes, among others, the clinical conditions arising after exposure to lead and its compounds; mercury and its compounds; arsenic and its compounds; phosphorus; manganese; benzene and its homologues; nitro and amido compounds of the aromatic series;

Insurance, Life; Presumption Against Suicide.—A policy on the life of the deceased provided that if within one year after its date the insured should die by his own hand or act, whether sane or insane, liability should be limited to the amount of the premiums paid. After the insured's death within the one year period, the insurer claimed that he had died by his own act. The insured had suffered from pellagra for a number of years, but his physician went no further than to say that he thought "at one time that 'he was possibly a little off,'" but that perhaps he would have overlooked that fact if he had not been hunting for it Neighbors and associates testified that they had never noticed anything wrong with his mentality. The insured and his wife were found dead in their home. His wife was on the bed, apparently having been killed by a blow on the head with some blunt instrument. She had died apparently at least eight hours before her husband, as determined by the relative degrees of decomposition of their bodies. The insured was lying on the floor, with his throat cut on both sides and incisions on both wrists and ankles. Lying near him was a large knife, and on the mantlepiece were a small knife and a razor blade, on all of which, as well as on an electric bulb, there was blood. Bloody prints were on the floor, apparently the tracks of some one who had stepped in the blood. There was testimony to the effect that the front door of the premises was unlatched, that it was the custom of the insured to leave the doors unlocked, thus enabling any one to enter the house without difficulty. There was further testimony that a few days before his death he had received $400 in a business transaction, which could not be found or accounted for. Neighbors had heard no disturbance in the house. The furniture in the room was not disarranged and there was no evidence of the ransacking of trunks, chests, bureau drawers, or other receptacles such as might have contained money. In quoting its own previous opinion (*McKendree v. Life Insurance Co.*, 112 S. C. 335, 99 S. E. 806, 807) the court said:

> The presumption of fact is that a man will not take his own life. Every action of a man, voluntary and involuntary, tends to preserve his life.

Under the testimony, said the court, it could not be said, as a matter of law, that the presumption against self-destruction had been overcome and the fact of suicide established. As more than one inference could be drawn from the evidence as to how the insured came to his death, the trial judge properly submitted the question to the jury.—*Swofford v. Life Ins. Co. of Virginia (S. C.), 157 S. E. 7.*

Dying Declarations: Mental State of Declarant.—The declarant died as the result of a gunshot wound, inflicted June 18, 1929. The bullet entered "the summit of the head," in a line drawn from the opening of one ear to the opening of the other, directly over the head. The bullet split, one half passing through the skull into the brain and the other passing along the top of the skull, under the scalp, emerging and finding lodgment in the wall near the ceiling. In the course of an operation an incision was made across the front of the head, an inch and a half above the eyebrows. The bone was found "shattered there, cracked loose." The surgeon removed such loose pieces of bone as he thought proper, along with parts of the brain, and extracted from the right lobe of the brain the fragment of the bullet that had lodged there. Dying declarations were taken on July 27 and August 9, and the patient died on August 14, 1929. An autopsy showed the path of the bullet through the right lobe of the brain, touching the left lobe also a little in one place. Posterior to it, there was necrosis. There was evidence of a devitalization of tissues along the course of the bullet.

The wife of the deceased was convicted of murder and appealed to the Supreme Court of Nevada, where her conviction was affirmed (*State v. Watts*, 290 P. 732). On a rehearing, it was urged, among other things, that because of the nature of the wound inflicted on the deceased, and his weakened condition, his brain had deteriorated very materially and his mentality was not sufficient to justify the introduction of the dying declaration made by him; also that there was a strong likelihood and possibility of his laboring under "a hallucination" by reason of the weakened condition of his brain when the dying declarations were made. The testimony of several witnesses showed, however, that at various times between the infliction of the wound and death, the mind of the deceased was clear. The attending physician testified that until about July 23 or July 24 the mentality of his patient was clear; that on or about July 27 and for four or five days prior thereto he was "slipping pretty fast," and between July 27 and August 9 his physical condition was progressively bad, but that his mentality on July 27 and August 9, the days when the dying declarations were made, was quite clear. After having examined the records "with the utmost care and the most minute scrutiny," the Supreme Court of Nevada concluded that the dying declarations were properly admitted in evidence.—*State v. Watts (Nev.), 296 P. 26.*

Optometry: Eyesight Testing Device Supplied for Use by Customer.—In Missouri, persons, firms and corporations who manufacture or deal in eye-glasses or spectacles in stores, shops or other permanently established places of business are not required to be licensed under the optometry act. The defendant sold eye-glasses in his jewelry store in Kansas City. In his store he kept a "self-fitting eye-testing machine," by the use of which customers were supposed to be able to determine, each for himself, the kind of eye-glasses he needed. The state instituted a prosecution for practicing optometry without a license, contending that the use by the defendant, or the furnishing by him for use, of the device described constituted something more than the sale of glasses and was the practice of optometry. The defendant was convicted. Thereupon he appealed to the Supreme Court of Missouri, contending that under the exempting provisions of the optometry practice act he was permitted to facilitate the sale of eye-glasses by the use of the device described. The Supreme Court upheld his contention, reversed the judgment of the trial court, and discharged the defendant. In exempting from the operations of the optometry practice act, persons who deal in eye-glasses or spectacles in stores, shops and other permanently established places of business, said the court, the legislature must be presumed to have intended that such dealers might do the things properly incident to such dealing. The sale of eye-glasses presupposes some test or trial by the customer to determine which glasses best suit him, just as in buying a suit of clothes or a pair of shoes there must be a "trying on" or test to determine the fit. If the dealer permits the customer to take from a tray, put on, and look through, pair after pair of glasses, or if the dealer hands the customer from a tray one pair of glasses after another until the customer finds the pair that suits him, it would hardly be contended that was more than is permissible under the exemption. The testing device furnished by the defendant, said the court, was in effect only the means by which a customer could try various eye-glasses without actually handling them.—*State v. Knapp (Mo.), 33 S. W. (2d) 891.*

Insanity: Prior Mental Condition as Evidence.—Evidence of prior and subsequent mental conditions is admissible to determine a person's mental condition at the precise time of the act in issue. A witness who has had opportunity and occasion to know and observe a person whose sanity is impeached may testify to facts and may express an opinion based on his knowledge and observation as to the mental condition of such person. While evidence of previous insanity of a temporary character may not raise a presumption of continued insanity, it may be considered by the jury in connection with other evidence in determining an issue as to a person's mental capacity.—*Mangum v. Brown (N. C.), 156 S. E. 535.*

Society Proceedings

COMING MEETINGS

Philippine Islands Medical Association, Manila. December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., December 8-11. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

sidered. They form a fairly large and quite hopeless group. A careful review of the pathologic sections of cases of cancer of the cervix has led to little corroboration of the finding of several writers that histologic form bears a relation to prognosis as the result of variations in malignancy or in radiosensitivity. There was a very slight indication of such a relationship in carcinoma of the corpus. The correct separation of corpus adenocarcinoma from endometrial hyperplasia, of papillary cystadenocarcinoma of the ovary from papillary cystadenoma, of myosarcoma from fibromyoma, and of fibrosarcoma from fibroma of the ovary is, however, of vital importance in prognosis.

Malignant Tumors of Testis.—Rea states that while malignant tumors of the testis are uncommon, they occur relatively much more frequently in undescended than in descended testes, and the danger of malignant tumor in the abdominal is just as great as in the inguinal testis. The present forms of treatment are unsatisfactory. The proportion of four-year survivals after orchidectomy is but 13.2 per cent. When suitable irradiation is added to orchidectomy, this percentage is materially increased in patients without obvious metastases. Approximately 7 per cent of those with obvious metastases are saved, at least temporarily, by irradiation. The value of Coley's serum in conjunction with other methods requires further study. The best results from any single method in the operable cases follow the radical operation (block excision of the testis, spermatic cord, and regional lymph nodes). Judging by the literature, the author believes that results surpassing those yet attained should attend the combination of radical surgery and irradiation. Education of the public to seek competent medical advice early is the only practical solution of the problem of malignant tumors of the testis at present. Biopsy and frozen section diagnosis should be resorted to, with the patient prepared for immediate radical surgery, in early doubtful cases. The undescended testis should be placed in the scrotum, where it can be observed, in all cases. This proving impracticable, it should be excised, provided the opposite organ is normally placed or placeable.

Physical Nature of Cancer Cells.—In their investigation of the physical nature of cancer cells, Crile and his associates have sought evidence in support of the widely held theory that cancer owes its development to some alteration in the cells of the tissues as the result of some mechanical, physical or chemical factor. To this end they have been endeavoring to discover some physical principle which might account for the conversion of normal cells into cancer cells as the result of single or repeated injury; for cancer cells do not originate in uninjured, unchanged tissues, but in tissues which have been subjected to chronic irritation. It is clear that the cancer cell must owe its formation to the operation of existing laws of growth in the host, for cancer originates and lives only in the living. The problem, therefore, is concerned with the struggle for survival between the cancer cell and the normal cell; and the logical point of attack would seem to be the characteristics of the normal cell. The authors have therefore been trying to discover what physical differences might account for the conversion of differentiated into undifferentiated cells; of cells whose energy is used primarily for function into cells whose energy is used primarily for growth. They have found that as compared with neighboring cells cancer cells appear to have a greater conductivity and capacity. In rat cancer the injury current of a cancer is opposite to that of the neighboring tissues and organs. The electric potential may be an index controlling the treatment. By ionization the sign of charge of a cancer cell may be changed and the change maintained. It is suggested that after cancer tissue has been partly reduced by ionization it may be completely reduced by radiation at a lesser dosage than that used clinically.

Blood Chemical Examination in Cancer.—Hueper and his associates correlated the malignancy indexes and the blood p_H values in thirty-four cases of carcinoma. A preponderance of histologically highly malignant tumors was found in patients with an alkalosis, while the tumors of histologically low malignancy predominated in patients with a normal blood p_H. The alkalosis of the blood in cancer patients varies not only with the extent of the disease but also with the degree of malignancy and maturity of the tumor. The degree of cellular irregularity of cancerous tissue is increased in patients with an alkaline p_H of the blood as compared with patients with a blood p_H in the normal range. In about one third of the cancer patients with a hyperglycemia (which was present in 78.3 per cent of the cases) a high number of mitoses was found, while this phenomenon was absent in cancer patients with a normal blood sugar.

Relation of Heredity to Occurrence of Cancer.—Slye presents the record of an entire single strain of mice derived from the mating of a cancerous female and noncancerous male, and bred through three generations. The report includes all totals regarding the occurrence of malignant diseases and the ages of the mice. The entire strain, including the parents, consisted of 207 individuals, of which 115 were females and 92 were males. Of these, 23 were cancerous, or slightly over 11 per cent of the strain. The matings in this strain were practically typical of human matings, and the 11 per cent of neoplasms is a close approximation to the percentage of occurrence of neoplasms in man. The types of neoplasm occurring in this strain were carcinoma of the mammary gland, squamous-cell carcinoma of the skin, carcinoma of the lung, and leukemic diseases. In this strain two external factors were noted in connection with the two predominating types of cancer: (1) chronic dermatitis of the muzzle and eyelid skin, in both sexes; (2) a marked tendency to the formation of cysts in the inguinal mammary gland. Every case of skin cancer and every precancerous condition of the skin arose on a chronic dermatitis, frequently of long duration; and some of the mammary gland carcinomas seem to have arisen in mammary gland cysts. Other characteristics noted in the strain are the prevalence of pneumonia and nephritis, a tendency to emaciation in all of middle and late life, and a tendency to longevity. The average age at which cancer was noted in this strain was ten months and one day. The average age at death of the cancerous mice was 1 year, 1 month, 12 days. The average age at death of the noncancerous mice was 1 year, 3 months, 29 days. Thus, not only did the noncancerous mice of any given generation live well beyond the age at which cancer occurred in the cancerous mice, but their noncancerous offspring also lived long enough to confirm the classification of both themselves and their parents as noncancerous individuals. The twenty-three cancers were distributed as follows through the four generations studied: (1) In the parent generation, one, the parent female of the strain; (2) in the first generation, consisting of nine individuals, none were cancerous; (3) in the second generation of thirty-six individuals, nine were cancerous, and (4) in the third generation of 160 individuals, thirteen were cancerous. All the figures reported are a close approximation to the classic expectation for cancer as a mendelian recessive, and the classification of every mouse is confirmed by its progeny.

Effect of Injection of Heated Tumor Tissues.—Sugiura and Benedict placed fragments of fresh tumor tissues in a Locke-Ringer solution at p_H 7.0 and submitted them to various temperatures for varying periods in order to obtain the minimum lethal time for a given temperature. Inoculation of heat-inactivated Flexner-Jobling rat carcinoma cells previous to implantation of fresh, healthy homologous tumor cells did not prevent the growth of the latter. Injection of heat-inactivated Sugiura rat sarcoma cells produced slight but definite protection against the subsequent growth of new sarcoma cells in the treated animals. Injection of a fragment or emulsion of Rous chicken sarcoma in which the causative agent had been attenuated at a temperature between 45 and 60 C. with a minimum time of exposure conferred marked resistance to the subsequent implantation of the homologous tumor. The immunizing property of the attenuated chicken sarcoma was abolished by prolonged heating or heating the tumor tissue at a much higher temperature. Previous injection with the heat-inactivated Rous chicken sarcoma brought about prolongation of life in the tumor-bearing chickens, subsequently inoculated with viable tumor. Single or repeated subcutaneous or intramuscular inoculations of the heat-inactivated Flexner-Jobling rat carcinoma, Sugiura rat sarcoma, or Rous chicken sarcoma did not have any effect in checking the growth of firmly established tumors in animals.

Parathyroid Hormone and Rat Carcinoma.—Paik describes experiments on rats in which he demonstrated that stratum corneum (plus granulosum) must play an important part in the protection of these sensitive layers against too strong irradiation. From 250 micromicrons on, the absorption of the horny layers increases rapidly. Near 200 micromicrons the absorption is so complete as to prevent any radiation from reaching the living layers of the skin. These observations prompt some speculation as to the rôle of the skin in the systemic effects of irradiation. The fact that certain effects of a local application are systemic can be explained either by assuming that rays penetrate into the blood stream and produce changes that are reflected in systemic reactions, or that nerve endings in the skin are stimulated, producing reflex changes, or that some substance is liberated in the skin and taken up by the blood and lymph, to be distributed to other organs or tissues.

Diathermy in Postoperative Lung Conditions.—In the diathermic treatment of postoperative lung conditions, Seybold uses large electrodes that cover the whole chest. The electrodes are made of mesh and sewed on white felt 1 inch thick. This mesh is 1 inch smaller on all sides than the piece of felt. Different sizes are kept so as to fit large or small chests. They are placed anteriorly and posteriorly, or occasionally they may be placed laterally in some pleurisy cases. No lubricant is used, just ordinary warm tap water. Treatments are given for thirty-minute periods or longer. They are given every twelve hours, or oftener as indicated. The milliamperage averages from 1,500 to 3,000 with a frequency of 1,000,000. The high voltage tap is always used in the author's cases. Any medication that is requested can always be given, as the diathermy does not interfere.

Canadian Public Health Journal, Toronto

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Difficulties and Problems in Program for Prevention of Mental Disease. A. T. Mathers, Winnipeg.—p. 485.
Immunization Against Diphtheria in County of Nicolet, P. Q. J. E. Sylvestre, Roxton Falls, Que.—p. 495.
Influence of Mortality Trends of Certain Diseases on Life Expectancy. J. M. Livingston, Waterloo, Ont.—p. 497.
New Lamps for Old. R. B. Jenkins, Edmonton, Alta —p. 501.
Cutaneous Myiasis in Canada. E. M. Walker, Toronto —p. 504.
Peter Ludwig Panum 1820-1885 Pioneer in Epidemiology of Measles. J. L. Little, Toronto—p. 509.
Tribute to Wyatt Galt Johnston, M D. M. P. Ravenel, Columbia, Mo. —p. 517.

Florida Medical Association Journal, Jacksonville

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Conservative Renal Surgery. R. J. Holmes and M M Coplan, Miami. —p. 163.
Enlarged State Board of Health Program. H. Hanson, Jacksonville. —p. 168.
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Witch Doctors and Their Practices. D. W. McMillan, Pensacola.—p. 179.
Granuloma Inguinale. F. E. Daves, Chattahoochee.—p. 184.

Illinois Medical Journal, Chicago

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Multiple Myeloma. C. D. Center and T. J. Merar, Quincy.—p. 286.
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Hemolytic Streptococcus Bacteremia with Endocarditis and Arthritis, Following Scarlet Fever. M. Kern, Chicago.—p. 298.
Secondary Anemia. R. F. Herndon, Springfield.—p. 302.
Kirchner Pin in Fractures of Long Bones. A. H Hauber, Chicago.—p. 306.
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Scarlet Fever Immunity and Streptococcal Puerperal Infection. G. E. Hudson, Chicago.—p. 328.
Therapeutic Use of Oxygen and Carbon Dioxide. H. P. Miller, Rock Island.—p. 331.
Use of Bacteriophage in Staphylococcic Infections. A. A. Janson and R. L. Larsen, Evanston.—p. 334.
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Fever Treatment of Paresis by Means of Diathermy Current and Electric Blanket. S. D. Wilgus and Leah Lurie, Elgin.—p. 341.
Fractures About Elbow Joint. H. D. Grossman, Chicago.—p. 344.
Relationship Between Mental Deficiency and Fields of General Medicine. G. B. Smith, Godfrey.—p. 346.

Johns Hopkins Hospital Bulletin, Baltimore

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Hemorrhagic Bright's Disease: I. Natural History. T. Addis, San Francisco.—p. 203.
*Study of Late Effects of Toxemias of Pregnancy (Excluding Vomiting and Eclampsia). C. H. Peckham and M. L. Stout, Baltimore.—p. 225.
*Treatment of Anemia of Infancy with *Iron and Copper.* H. Josephs, Baltimore.—p. 246.
Circulation of the Aqueous. J. S. Friedenwald and H. F. Pierce, Baltimore.—p. 259.

Late Effects of Toxemias of Pregnancy.—Of a series of 545 consecutive deliveries of toxemic patients, excluding eclampsia and vomiting, 66⅔ per cent of the patients were reexamined by Peckham and Stout from four months to four years after delivery, and at that time 40 per cent of them were found to have a definite chronic nephritis. The differential diagnosis between nephritic and nonnephritic toxemia frequently cannot be made during pregnancy or the puerperium, and even at six weeks after delivery the diagnosis is sometimes incorrect. Nephritis is seen more frequently in the older age groups and among multiparas. Two thirds of the nonnephritic toxemias occur in women under 25, and a similar proportion are primiparas. A marked hypertension (systolic 200 mm. or more and diastolic 150 mm. or over) is more frequently associated with nephritis, although an occasional case of preeclampsia is seen with this reading. Albuminuria and its amount is not of prognostic import. The presence or absence of casts in the urine likewise does not give differential information. The phenolsulphonphthalein and Mosenthal renal function tests give almost identical results in the two types of cases. Edema occurs in the same proportion of cases in the two groups. Toxemia patients in general seem to have shorter and easier labors than normal; however, the fetal mortality is high, particularly in nephritis. The blood pressure is higher on discharge in the nephritic type. However, many women who have nephritis leave the hospital with a normal blood pressure, while about a fifth of the women later returning normal still have hypertension. Albuminuria on discharge is noted in relatively the same proportion of cases, nephritic or nonnephritic. Even six weeks after delivery many normal women still have hypertension and albuminuria, while a small number of nephritic patients appear normal in these respects. Only 7 per cent of nonnephritic patients show hypertension or albuminuria prior to the seventh month of pregnancy, whereas over half the nephritic patients were known to be abnormal at that time. However, almost a fifth of the women who ultimately were diagnosed as nephritic were known to be normal until after the seventh month. This would seem to indicate that chronic renal damage may be a result of the toxemic process. If vomiting and eclampsia are excluded, one of every three women seen with a toxemia of pregnancy will ultimately be found to have nephritis. Except in perfectly obvious cases it seems better to defer the final diagnosis until four months after delivery, although a diagnosis intelligently made at the time of discharge from the hospital is incorrect in only one case in nine.

Treatment of Anemia of Infancy.—Josephs treated a series of anemic infants with iron, and iron with copper supplement. The results were considered statistically through the construction of a curve corresponding to the average rise in hemoglobin after iron alone. It was found that copper accelerated the rise in hemoglobin when given in addition to iron. This acceleration was most evident when the hemoglobin was above about 50 per cent, for above this point the hemoglobin curves from patients on iron alone tended somewhat to flatten out, whereas those from patients on iron and copper continued to rise steeply up to about 70 per cent. In this series it made no difference in the speed of recovery whether the child was on a diet of milk alone or whether vegetables or eggs were included, and medicinal iron was found to be far superior to food iron in causing a rapid recovery. The effect of the iron is first on the reticulocytes, then on the hemoglobin, and there usually exists a latent period before the effect on the hemoglobin is manifested by a rise. The end of the latent period appears to coincide with a sufficient rise in reticulocytes. Copper appears to accelerate hemoglobin formation and does not have an effect on the reticulocytes.

symptomatic temporary benefit in every case. In the extremely advanced cases this improvement has been of more scientific interest than of practical value. In hopelessly bedridden patients, definite increase of independence by the improved use of the arms has been obtained. In a comparatively early case, a symptomatic and functional recovery has been obtained. No claim can be made for the permanence of the improvement. It is the author's purpose to keep the cases under observation and report subsequently on their ultimate outcome.

Fusion of Knee in Charcot's Disease.—Cleveland and Smith report four cases of Charcot's disease of the knee in which operation was performed and in which solid bony fusion resulted in three and the results were highly satisfactory; i. e., the patients were able to walk without a brace or other support and had no instability in the knee. It is interesting also to note that firm union was present in one at four months, in another at five and one-half months and in the third at six months. This compares favorably with cases in which the fusion operation was done for other conditions, such as tuberculosis or stabilization of the knee in poliomyelitis. Not a little doubt was felt as to the possibility of obtaining bony fusion in a Charcot joint. Although this series is too small to justify any general conclusions, the results are sufficiently encouraging to warrant trying the operation in other selected cases. The fourth case, in which fusion did not take place and in which the wound broke down with the formation of sinuses, undoubtedly was too far advanced and the patient should not have been operated on. The patient's general condition was poor and, in addition to involvement of both knees, there was partial destruction of the metatarsal bones of one foot and a trophic ulcer. The technic used in these operations was that described by Hibbs for stabilization of the knee in poliomyelitis, and afterward employed for any condition in which arthrodesis of the knee is indicated, modified somewhat to meet the peculiar circumstances of each case. Weight-bearing in plaster was allowed at the end of from six to eight weeks.

Journal of Comparative Neurology, Philadelphia

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Journal of Immunology, Baltimore

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Studies of Properties of Bouillon Filtrates of Meningococcus: Production of a Soluble Toxin. N. S. Ferry and J. F. Norton, Detroit, and A. H. Steele, Northville, Mich.—p. 293.

Quantitative Determination of Fixation of Complement by Immune Serum and Antigen. A. Wadsworth, Elizabeth Maltaner and F. Maltaner, Albany, N. Y.—p. 313.

Journal of Lab. & Clinical Medicine, St. Louis

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Gonococcus Complement-Fixation Test in Synovial Fluid. D. H. Kling and J. Pinkus, New York.—p. 39.

Effects of Ultraviolet Irradiation on Reducing Power of Blood. L. M. Dillman, Chicago.—p. 44.

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*Significant Differences in Racial Susceptibility to Measles, Diphtheria and Scarlet Fever: Statistical Study of Case Incidence and Deaths Among Tenement Dwellers in New York City, 1921-1925, Inclusive. H. Emerson, New York.—p. 317.

Typhoid Fever Spread by Water from a Cistern Contaminated by a Carrier. E. Garrido-Morales and O. Costa Mandry, San Juan, Porto Rico.—p. 351.

Meningococcus Meningitis in Detroit in 1928-1929: IV. Meningococcus Carriers. J. F. Norton and Irene E. Baisley, Detroit.—p. 357.

Id. V. Secondary Cases. J. F. Norton, Detroit.—p. 365.

Carrier Infection Among Family Associates of Diphtheria Patients. Y. Kusama, Baltimore, and J. A. Doull, Cleveland.—p. 369.

Effect of Heat, Storage and Chlorination on Toxicity of Staphylococcus Filtrates. E. O. Jordan, G. M. Dack and O. Woolpert, Chicago.—p. 383.

*Case of Food Poisoning Apparently Due to Staphylococcus. E. O. Jordan and J. R. Hall, Chicago.—p. 387.

*Experimental Study of Possible Routes of Contamination of Cakes with Food-Poisoning Staphylococci. G. M. Dack, O. Woolpert, Isabel Noble and Evelyn G. Halliday, Chicago.—p. 391.

Studies on Malaria: VIII. Migration of Infected A. Elutus at Various Seasons of Year. I. J. Kligler and G. Mer, Jerusalem.—p. 401.

Differences in Racial Susceptibility to Measles.—In a statistical study of case incidence and deaths among several race groups of tenement dwellers in Manhattan, borough of New York (1921-1925), Emerson found significant differences in the death and case incidence rates and in the case mortality percentages for diphtheria and scarlet fever, and in the death rates for measles, which do not appear to be explained by other factors than those of variations of susceptibility and resistance among the children of these races, under the approximately uniform conditions of contact exposure described. While unequivocal proof of specific race resistance cannot be offered by the statistical methods used in his study alone, the author believes that the factor of race is the only one of importance that can be recognized clearly as a variant of significance among the population groups studied.

Food Poisoning Due to Staphylococcus.—Jordan and Hall report an instance of food poisoning in a man and his wife who were suddenly taken ill with violent vomiting and purging accompanied by great prostration. The family consisted of three—the father and mother and a child about 9 years of age. The two adults, who had eaten gravy with the evening meal, developed severe symptoms in about three hours; the child, who did not eat gravy, showed no signs of illness. The gravy had been prepared on Tuesday from the leftover portions of canned chicken that had been served for Sunday dinner. The can bore the brand of a reliable, well known and nationally advertised firm. The chicken eaten on Sunday had caused no symptoms of any sort. In making the gravy, the bits of chicken meat and the broth or stock from the can were used. After preparation, the gravy had been kept in the icebox until Wednesday evening, when it was warmed and eaten at about 6 p. m. The gravy which was brought to the laboratory in the bowl in which it had been served the evening before, was normal in appearance and odor. Platings were made on plain agar, Endo medium and eosin-methylthionine chloride medium. No colonies suggesting those of the Salmonella group were found, but staphylococcus colonies were abundant on the plain agar. The general cultural characters of this staphylococcus were those of the common Staphylococcus aureus type. In pure culture the staphylococcus formed substances that, when swallowed by human volunteers, reproduced the typical picture of the original outbreak.

Contamination of Cakes with Staphylococci.—Dack and his associates report that staphylococci, introduced through inoculated egg whites or yolks into various cake batters of either the sponge or butter variety, were killed during the baking process. This was true in cakes of hydrogen ion concentrations ranging from 5.0 to 8.2. Staphylococci similarly introduced into a cream filler for cakes were destroyed during the cooking of the filler. Staphylococci inoculated into the filler after its preparation invaded the cake substance. Human feeding experiments showed that both the organisms and the toxic substance were present in the filler and in the cake itself. It therefore seems likely that, in some of the food poisoning a limb, obstructing it, or if the main arteries of a finger or of a larger part of the limb enter into a spasm sufficiently intense to arrest the bloodflow, sensory and sometimes motor disturbances occur in the corresponding territory. They are of centripetal type and from the standpoint of forming an exact parallel to the paralysis observed do not require further comment. It is important to understand that such disturbances do not develop at once, but after intervals of time that depend on the length and temperature of the nerve that has lost its blood supply. To illustrate, it is often stated by patients, and seemingly believed by many who report such cases, that, in Raynaud's disease, fingers become white and numb at the time the circulation to them is lost; and this numbness has even been regarded as an evidence of a primary disturbance in the nervous system. Such views are proved erroneous by the authors' observations; the numbness is due to arrested bloodflow, and occurring in cold fingers appears only after a long delay. When a patient states that fingers that have been warm previously become dead, meaning numb, in cold weather, the numbness is evidence that the blood has ceased to flow to the fingers for a time period of the order of one hour. Similarly, if a patient complains of pain in the leg and within five minutes the leg is found to be numb and to have lost the pulsation of its vessels, it is certain that the obstruction preceded the pain by many minutes. Statements that limbs suddenly become white (or pale) and numb should be regarded critically until such incidents are more fully and accurately recorded.

Vasodilatation in Limbs in Response to Warming the Body.—According to Lewis and Pickering, a simple method of testing the capacity of arteries of the extremities to dilate is *to note the reaction in the cool extremity when the body* is exposed to a warm atmosphere. In the hand, vasodilatation so induced manifests itself first by a rise of temperature and by brightening in the color of the finger tips. The time at which the response begins is influenced by the initial temperature of the extremities, being delayed by coldness. The response is effected entirely through the sympathetic nerves. By studying the reaction in Raynaud's disease and comparing the effects of ulnar anesthesia, the authors obtained evidence that the human sympathetic nerves contain vasodilator as well as vasoconstrictor fibers. The warm chamber is valuable clinically in differentiating obstruction arising from spasm and from structural disease of the arteries. In the former the response is rapid and proceeds to a high level. In the latter the response is slow and less pronounced. The chamber can also be used in determining that the sympathetic innervation of vessels of the limb has been lost.

Lancet, London

2: 833-886 (Oct. 17) 1931

*Some Principles in Surgery of Pharynx. W. Trotter.—p. 833.
*Size of Healthy Heart and Its Measurement. D. E. Bedford and H. A. Treadgold.—p. 836.
*Cerebral Tumor as Cause of Generalized Epileptic Attacks of Long Standing. E. A. Blake Pritchard.—p. 842.
*Occurrence of Scarlatinal Types of Streptococci in Nonscarlatinal Infections. V. D. Allison.—p. 844.
Case of Multiple Personality. R. M. Riggall.—p. 846.

Surgery of Pharynx.—Trotter calls attention to the fact that the mortality of operations for malignant disease of the pharynx is considerable, whether the actual treatment of the growth is by excision or by radium. The chief factor in this mortality is infection either of the lungs or of the extrapharyngeal tissues but in any case due to access of the pharyngeal contents to the infected part. The actual conduct of the operation can undoubtedly reduce the risk of such infections, but it cannot ever exclude it with certainty. While therefore every step of the operation will be oriented toward the limitation of infection, other means must be found of a more general usefulness if the mortality is to be kept below a level prohibitively high. The infection that follows contamination of a wound by pharyngeal mucus has clinical features and a clinical course that are characteristic. It is a progressive sloughing cellulitis, nonsuppurative for several days, accompanied by moderate fever for eight to ten days, when suppuration and the separation of sloughs begin. It is intolerant of the least restraint of drainage and always involves a risk of serious secondary hemorrhage. Clinical experience proves that the cause of this characteristic infection is always present in those who have teeth whether the teeth are many or few, or with or without obvious disease; it also proves that in the edentulous the cause of this infection tends to disappear or to be greatly attenuated. Thus, in the aggregate the risks of major operations on the pharynx are greatly reduced in the edentulous, and there is no general precaution in the preparation of a patient for such an operation that can compare in value with a clearance of the mouth and a delay *until the gums are soundly healed*. There are few facts of clinical surgery more firmly established than this relation between the presence of teeth and the liability to sloughing infections of wounds to which the oral or pharyngeal mucus has access; there is certainly none so unquestionably true that is so little valued and acted on. So much is this the case that it is necessary to speak of the subject with emphasis and without ambiguity. It is doubtful whether a major operation on the pharynx is ever justifiable in any but an edentulous patient. *This question is quite different* from that of clearing the mouth to produce an effect on some general or distant disease. One is not concerned with anything so problematic but with the attempt to get the pharynx into a condition as near surgical cleanliness as one can, and no other precaution for such a purpose has any claim to compare with this one. It is necessary to lay stress on the fact that if the relative sterility of the mouth is a most important preliminary to any major pharyngeal operation, it is doubly important if radium is to be used. It is perhaps because radium is sometimes regarded as having simplified the treatment of malignant disease of the pharynx that there is a tendency to disregard the stringent necessity for every precaution against infection when it is used. If it is questionable whether any major operation on the pharynx should be done except in the edentulous there can be no doubt that if radium is to be used this precaution is essential to reasonable safety.

Size of Healthy Heart and Its Measurement.—Bedford and Treadgold believe that location of the apex beat by palpation is the most reliable clinical method of measuring the heart, and orthodiagraphy is the simplest and most accurate roentgenologic method. *The total transverse diameter is the most reliable* index of heart size for practical purposes. The transverse diameter varies directly with body weight but not with height. At any given weight, the transverse diameter varies inversely with height. Short, broad subjects have wider hearts in proportion to body weight than tall, slender subjects. The normal transverse diameter may be predicted with reasonable accuracy from body weight in those whose height is ideal for their weight. In others both height and weight must be taken into account in predicting heart size. The observed transverse diameter expressed as a plus or minus percentage of that predicted from weight and height is the best way of indicating heart size. If one takes into account both weight and height, about 85 per cent of normal hearts fall within a range of plus or minus 10 per cent of the predicted normal, and less than 10 per cent of hearts exceed the upper limit of plus or minus 10 per cent. Measurements cannot be applied as a rule of thumb method in separating healthy from diseased hearts, but must be considered in relation to the clinical data. In borderline cases changes in the shape of the heart silhouette, viewed from different angles, are likely to be of more value than measurements.

Cerebral Tumor as Cause of Generalized Epileptic Attacks.—Pritchard reports five cases which show that it is possible for a cerebral tumor to give rise to generalized convulsions and to status epilepticus for many years (in one case for eighteen years) before any other signs indicating a local cerebral lesion are detected. In general it may be stated that such tumors are slow-growing and *do not originate in*, but beneath, the cerebral convolutions. The seizures cannot be rightly regarded as resulting from a rise in intracranial pressure, since they may be present for many years before other signs of such a rise are present, and also because they do not increase either in frequency or in severity when a rise in intracranial pressure later supervenes. The inference drawn from these considerations is that when convulsions commence and occur repeatedly in persons of middle age—even though the convulsions are generalized in character and do not leave behind them local impairment of function—they should be regarded as possibly resulting from an intracranial tumor and the patient should be kept under repeated observation, which may only carbohydrates. The addition of the hormone increases the action of insulin. Their glycoregulatory action is synergistic and complementary. The results obtained when the two hormones were associated in the treatment of diabetes were conclusive. In summary, the addition of the vagotonic hormone to insulin in the treatment of some diabetic persons increased the glycoregulatory function of the pancreatic extract, the quantity of insulin necessary was diminished and the number of daily injections sometimes cut to one; increased carbohydrate tolerance made possible an increased intake of sugar; the glycosuria and acetone bodies disappeared; the lipoid and protein metabolism was improved; there was an increase in weight and an improvement in the general body condition. More than thirty patients with diabetes were treated in this way. The authors believe that their results recommend the association of the vagotonic pancreatic extract with insulin in the treatment of diabetes.

Sang, Paris

5: 513-640, 1931

*Leukemias with Tumors. P. Emile-Weil and P. Isch-Wall.—p. 513.
Clinical, Hematologic and Histologic Observations in a Case of Leuko-Erythrophthisis. N. C. Lupu and G. C. T. Nicolau.—p. 530.
Thrombopenic Hemorrhagic Diathesis with Severe Secondary Anemia. J. V. Grott and L. Galnowski.—p. 547.

Leukemias with Tumors.—Emile-Weil and Isch-Wall believe that (1) leukemias with tumors are acute leukemias; (2) the appearance of osseous, cutaneous or lymph node tumors in the course of a chronic leukemia announces the transformation into acute leukemia with a rapidly fatal prognosis. When the acute stage has appeared, all treatment that might lead to destruction of leukocytes, roentgen rays, or benzene should be discontinued, and purely palliative and symptomatic therapeutics retained. Continuation of active therapy only helps to precipitate the evolution with consequent acute hemorrhagic accidents. The authors review five cases including an acute leukemia with a primary tumor of the mediastinum, a chloroma diagnosed as acute leukemia, two cases of acute leukemia with tumors of the lymph nodes subsequent to myeloid leukemia, and one case of acute leukemia with cutaneous tumors subsequent to myeloid leukemia.

Prensa Médica Argentina, Buenos Aires

18: 437-486 (Sept. 10) 1931

Obliteration of Peripheral Vessels. M. Bastos Ansart.—p. 437.
Postencephalitic Sclerosis with Plaques Associated with Tubero-Infundibular Syndrome. A. F. Camauër and J. I. Sacon.—p. 448.
*Fat Necrosis of Subcutaneous Tissues. D. Mosto.—p. 452.
Therapeutic Action of Drainage of Bile Ducts. H. A. Zunino.—p. 472.

Fat Necrosis of Subcutaneous Tissues.—Mosto reviews the literature on fat necrosis of the subcutaneous tissues and reports ten cases in new-born infants, children and adults. The lesions do not show an elective localization since they may develop in the subcutaneous tissues of the mammary gland, abdomen and muscles, particularly in the muscle regions in which oil injections are given. From his observations the author concludes that fat necrosis of the subcutaneous tissues is similar in adults, children and infants. The following are its principal types: (1) primary (aseptic) necrosis of spontaneous development (which is caused by disturbances of the fat metabolism) and (2) necrosis secondary to trauma or to inflammatory processes. The form of diffuse nodular fat necrosis of the subcutaneous tissues of the new-born infant and of children may be either of the first or of the second type. From the anatomic and pathologic points of view, the lesion is similar to lipoid granulomas caused by injections of oil or some other liquid or by the presence of collections of cholesterol. In the anatomicopathologic observations the saponification of the fat and the formation of granulation tissue are evident. In the genesis of the tumors, both predisposing and determining factors are involved. The outstanding predisposing factor is a condition of special tendency, governed by the endocrine and the sympathetic nervous systems, which certain organisms have to develop the disease. Trauma, hemorrhage, ischemia, vascular lesions, inflammatory processes and the presence of toxins in the organism are the most frequent determining causes of the development of the disease.

18: 487-536 (Sept. 20) 1931

Intra-Articular Endothelioma Arising from Synovial Membrane: Case. J. Diez.—p. 487.
*Syndrome of Anterior Condyloid Foramen and of Foramen Lacerum Posterius: Case. C. Pinedo.—p. 501.
Lowering of Hyperchlorhydria After Gastric Resection According to First Method of Billroth. F. Basch.—p. 505.
Therapeutic Action of Medical Drainage of Bile Ducts. A. Zunino.—p. 521.

Syndrome of Anterior Condyloid Foramen and of Foramen Lacerum Posterius.—Pinedo states that the syndrome of the anterior condyloid foramen and of the foramen lacerum posterius (paralysis of the last four cerebral nerves) is uncommon. He could not find any reference to the syndrome previously published in Argentina. Vernet in 1916 compiled fourteen cases from the literature. In the author's case, clinical and anatomopathologic observations were made. In the case under his observation the syndrome proved to be caused by compression of the glossopharyngeal, the vagus, the accessory and the hypoglossal nerves of the right side, produced by a myelosarcoma arising from the transverse processes of the first and second cervical vertebrae, with extension to and destruction of nearby structures. The author describes the mechanism of the syndrome in detail, thus explaining the whole picture given by the syndrome: anesthesia of the velum palatinum, anesthesia and paralysis of the pharynx, the larynx and the tongue, dysphagia, disturbances of the voice and of the taste, and respiratory disturbances with grave asphyxia, all the symptoms undergoing a progressive evolution to a fatal outcome.

Semana Médica, Buenos Aires

38: 865-944 (Sept. 17) 1931. Partial Index

Combined Orthopedic and Rest Treatment in Pott's Disease. J. M. Jorge, M. Gamboa and J. Dietsch.—p. 873.
Hematoma of Sheath of Optic Nerve After Trauma. A. J. Manes.—p. 878.
*Milk in Infant Feeding. E. Foster.—p. 891.
Primary Sarcoma of Lung in Infant. J. G. Fernández and M. A. Carri.—p. 907.
Hemolytic Anemia of Old Persons: Case. J. C. Rey.—p. 912.
*Multiple Perforations of Small Intestine by Bullet. J. A. Luco and J. Passerini.—p. 921.

Milk in Infant Feeding.—Foster believes that breast feeding is the best alimentation for nurslings. He made a chemical analysis and a comparison of effects of breast milk, cow's milk and ass's milk. The content of lactalbumins in breast milk and in cow's milk is similar (5.2 and 5.5 Gm. per thousand cubic centimeters, respectively), while in ass's milk it is higher (8 Gm. per thousand cubic centimeters). The number of calories produced by breast milk and by cow's milk is 761 and 676, respectively, while that given by ass's milk is 500. The author (basing his observations on the results of his studies on problems of anabolism and catabolism of the elements of the three kinds of milk, in relation to digestive ferments and enzymes, as permitting a better assimilation of the nutritious elements of milk by the infant's digestive apparatus) regards cow's milk as the most satisfactory substitute for breast milk whenever the latter is not available. Raw cow's milk may contain pathogenic bacteria (including tubercle bacilli); it is difficult to digest and therefore causes intestinal disturbances. To make it more easily assimilable and safer for infants, one should properly modify it, trying, however, to keep the concentration of its elements in the most approximate proportion to that in breast milk. When used in artificial feeding, it should be boiled, mixed with an equal amount of water and then enriched by the addition of cream or carbohydrates (saccharose or common sugar), to compensate for the loss of its nutritious value which it undergoes through dilution and boiling. The addition of cream (as representative of fatty substances) may be higher in winter than in summer. Evaporated milk and dried milk, because of their avitaminic properties, if used in artificial feeding should be given either temporarily or as a supplementary food to breast milk or to cow's milk.

Multiple Perforation of Small Intestine by Bullet.—Luco and Passerini advise the performance of an abdominal operation immediately on admission of patients who have received a bullet wound, when there are good reasons to suppose that the bullet has penetrated the abdominal cavity, even

Archiv für Kinderheilkunde, Stuttgart

94: 81-240 (Sept. 11) 1931

Investigations on Immunobiology of Pneumonia. E. Kramár.—p. 81.
*Significance of Electrocardiography for Prognosis of Diphtheria. P. von Kiss.—p. 97.
Toxicity of Several Ergosterol Preparations. O. Göttche and B. Kellner.—p. 129.
Metabolism of Healthy Infants Fed with Vegetable Milk. Maria Niermann and Margot Winter.—p. 146.
Studies on Pneumonia During Childhood: Pleural Empyema. R. Kochmann.—p. 159.
*Tonsillectomy and Schick Reaction. D. Orosz and G. Kugler.—p. 168.
Diphtheria Vaccinations, Schick Tests and Determination of Antitoxin Titer in Serum. H. Thiele.—p. 175.
Pneumothorax Apparatus with Simple Manipulation for Use in Pediatrics. L. Dobszay and I. Salamon.—p. 202.
Combined Serum and Calcium Therapy in Diphtheria. E. Kaesper.—p. 205.
Polypus on Rim of Choana in Small Child. K. Rupilius.—p. 209.

Electrocardiography for Prognosis of Diphtheria.—Von Kiss maintains that for a correct prognosis in malignant diphtheria and for determining the condition of the heart it is necessary to resort to electrocardiography. However, a single test is rarely sufficient, for only when the examination is repeated is it possible to detect progressive deterioration of the cardiac condition. In patients with diphtheria a dysfunctioning of the heart is indicated by lowered ventricular complexes, by depression of the T and P deflections in at least two leads, by extension of the T deflection, and especially by eventual omission of the T and P deflections; also by disturbances of the Q-R-S complex in at least two leads. If these abnormalities become more marked in the later tests, or if the curve presents the aspects of complete muscular dysfunctioning, the prognosis is usually unfavorable, even when the clinical signs do not indicate a dysfunctioning of the heart. The author gives several case histories and illustrates them with electrocardiographic charts.

Tonsillectomy and Schick Reaction.—In studies on 161 tonsillectomized children, aged between 1 and 6 years, Orosz and Kugler found that contrary to the theory of a relationship between tonsillectomy and the Schick reaction, which was advanced by Tomlin and later corroborated by Schick and Topper as well as by several others, they did not observe any relationship whatever between the two. On the contrary, they observed an increased susceptibility to diphtheria rather than a reduced susceptibility. Neither did the authors find a relationship between the aftergrowth of the tonsils and the behavior of the reaction. They think that the fluctuations in the negativity of the Schick reaction are largely due to the epidemiologic conditions existing at different times, and they think that the results which Schick and Topper ascribe to tonsillectomy may be due to some of these incalculable external factors. The practical conclusions which Schick and Topper arrived at from their theory, namely, to resort to tonsillectomy instead of to immunization, and to test tonsillectomized children before immunization in order not to give superfluous treatment, are likewise rejected by the authors.

Deutsche Zeitschrift für Chirurgie, Berlin

232: 701-792 (Sept. 5) 1931

Bone Transplantation: Experimental Studies and Application in Practical Surgery. S. Orell.—p 701.
*Traumatic Nephritis. F. Schörcher.—p. 714.
Clinical Aspects of Subcutaneous Injuries of Abdominal Organs by Blunt Force. J. Jáki.—p. 724.
Bacteriologic Investigations on Major and Minor Omentum in Ulcer and Cancer of Stomach. H. Weber.—p. 747.
Distention Ulcer of Intestine (Kocher). Reichel.—p. 758.
Congenital Microcolon. E. Drost.—p. 764.
Chronic Appendicitis. E. Prass.—p. 767.
Evaluation of Modern, Artificial Illumination of Operating Room. Drüner.—p. 769.

Traumatic Nephritis.—Schörcher reports the clinical history of a man in whom bilateral glomerular nephritis developed after a trauma, which the man sustained by a fall over a pole, while ski-running. The nephritis resulted in a contracted kidney. The author further discusses the various conditions that may cause nephritis and also the relations between trauma and nephritis, and he thinks it possible that a trauma may be the only cause of a nephritis. He considers three possibilities in which a traumatic nephritis may develop: by a prolonged spasm of the renal vessels, by formation of nephrotoxins and by a local reduction of the resistance power. It is also possible that all these factors combined lead to nephritis.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

89: 1-160 (Sept.) 1931

Influence of Inferior Ovaries on Offspring. J. Bondi.—p. 1.
*Fetal Birth Traumas and Their Treatment. S. Liebmann.—p. 14.
*Significance of Retroplacental Blood for Detection of Syphilis. W. Hilden.—p. 32.
*Sure Sign of Hypermaturity in the New-Born. F. Szellö.—p. 35.
Evaluation of Clinical Obstetrics. M. K. Wenzbowsky.—p. 44.
Diseases of Female Genitalia Caused by Bacillus Coli. Becker.—p. 49.
Use of Alcohol Injections in Gynecology in Treatment of Dysmenorrhea, Hemorrhoids and *Hypoplasia*. R. Hofstätter.—p. 59.
Influence of Pregnancy and of Gynecologic Diseases on Guttadiaphot. Lotte Kürzel.—p. 71.
Physiology and Disorders of the New-Born and of Female Breast. H. Rossenbeck.—p. 78.

Fetal Birth Traumas and Their Treatment.—Liebmann shows that although skull depressions are usually caused by a narrow pelvis, fractures and paralysis are generally the result of extraction by the breach. It is of great significance that the injuries be recognized immediately for, if the proper therapeutic measures are taken, neither the functioning nor the further development becomes noticeably impaired.

Significance of Retroplacental Blood for Detection of Syphilis.—Hilden states that examination of the retroplacental blood always gave the same reaction as the venous blood gave on the seventh day of the puerperium. The result of Wassermann tests made during confinement was found just as reliable as the result of those made at other times. Nonspecific reactions were not observed, and the author thinks that the positive reactions during confinement and puerperium, which later disappear again, are reactions produced by a latent syphilitic infection. The diagnosis of syphilis should never be based on a single positive reaction. Every unexpected positive reaction during birth and the puerperium requires careful after-examination.

Sure Sign of Hypermaturity in the New-Born.—Roentgenologic examination of the wrist joints of the new-born convinced Szellö that those in whom signs of the os capitatum and of the os hamatum are detectable on the first day after birth are hypermature, for ordinarily these bones do not become visible until the second half of the first month of extra-uterine existence. This sign is valuable for forensic medicine, but since it is not detectable in utero it is not of value for determining the advisability of the artificial induction of labor.

Wiener Klinische Wochenschrift, Vienna

44: 1181-1208 (Sept. 18) 1931

Modification of Pressure in Right Ventricle by Respiration. R. Wagner.—p. 1181.
Operative Treatment of Acute, Profuse Gastric and Duodenal Hemorrhages. H. Finsterer.—p. 1185.
Hydropericardium During Hydronephrosis. P. Saxl.—p. 1188.
Form of Endocrine Arthralgia. L. v. Pap.—p. 1189.
*Subungual Tumors. D. Eisenklam.—p. 1192.
Clinical Results of Application of (Sexual) Cycle Hormone. A. Wicke.—p. 1193.
Diagnosis and Therapy of Diseases of Tracheobronchial Tree by the Bronchoscope. F. Haslinger.—p. 1195.
Tumors of Eye with Especial Consideration of Their Treatment. J. Böck.—p. 1199.
Period of After-Treatment Following Malariotherapy of Dementia Paralytica. O. Kauders.—p. 1199.
Pathogenesis of Chronic Inflammation of Gums and Cause of Odontoptosia. B. Gottlieb.—p. 1200.

Subungual Tumors.—Eisenklam points out that subungual tumors of the fingers and toes are often incorrectly diagnosed. Thus many patients have to endure severe pain for prolonged periods, and in other cases the life endangering significance of the tumor is recognized too late. After reporting several case histories he discusses the three types of subungual tumors; namely, the benign, the intermediate and the malignant forms. The benign forms are the exostoses that usually develop in young patients, the subungual fibromas that generally grow slowly and cause little pain, and rare forms such as osteochondromas, papillomas, leiomyomas and myxochondromas. The intermediate forms of tumors usually develop following a trauma. First there is a small blue spot underneath the nail, were ineffective, insulin produced an increase in the percentage of hemoglobin as well as an increase in the number of red blood cells and an improvement subjectively and objectively in the patient's condition. There was no influence on gastric secretion. In the cases in which the spleen was enlarged, the treatment led to a decrease in its size. The effects of insulin lasted not only during but after the conclusion of treatment. Secondary anemia conditions were markedly improved; but in pernicious anemia and in anemia without regeneration of erythrocytes there was a relapse within six months after treatment.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 4751-4878 (Sept 19) 1931

Sleep and Hypnotics. E. D. Wiersma.—p. 4752.
*Auto-Agglutination in Human Blood. J. van der Hoeden and A. G. M. Verbeek.—p. 4767.
Injury to the Eye Caused by a Crystal of Potassium Permanganate. G. W. Wisselink.—p. 4795.

75: 4879-4970 (Sept. 26) 1931

Bronchiectasis. G. J. van Thienen.—p. 4884.
Prophylactic Roentgen Irradiation After Operative Removal of Cancer of Breast. A. E. Nordholt.—p. 4892.

Auto-Agglutination in Human Blood.—Van der Hoeden and Verbeek state that *in the serum and plasma of the blood* of four patients with hypertrophic biliary cirrhosis, which blood was collected at body temperature (37 C., or 98.6 F.) they demonstrated the presence of a substance that at temperatures below about 25 C. (77 F.) caused auto-agglutination of the erythrocytes. The agglutination at these temperatures is reversible. In the microscopic preparation one observes that the erythrocytes first collect in short chains, which then, as the temperature falls further, are brought together to form larger conglomerates. Through saturation of the serum with suitable erythrocytes at temperatures above 25 C., the iso-agglutinins can be withdrawn, whereas the substance mentioned, which former researchers have termed "auto-agglutinin," remains present unchanged. Not only in the serum but also in the plasma, the auto-agglutinin remains stable in physiologic solution of sodium chloride for at least six months. It stands heating up to a temperature of 60 C. (140 F.) but at 65 C. (149 F.) it is lost. It is not soluble in ether and cannot be passed through a collodion membrane. With saturated ammonium sulphate it is precipitated out of the solution, but not with calcium chloride. It is thus fixed to the globulin fraction of the serum and not to the fibrinogen. The auto-agglutinin is filtrable through a Chamberland-Pasteur candle and a Seitz filter.

Hygiea, Stockholm

93: 625-656 (Aug. 31) 1931

*Liver Extract Suitable for Injection. Selander.—p. 625.
Occurrence of Strain Specific Immunity in Tertiary Malaria and Significance in Fever Therapy. B. Jacobowsky and N. Sahlström.—p. 630.

Liver Extract Suitable for Injection.—In four cases of pernicious anemia in which he used treatment by intramuscular injection of a suitable commercial liver preparation, Selander found the results equal to those following oral administration of liver.

93: 657-688 (Sept. 15) 1931

*Splenectomy in Essential Thrombopenia. Å. Grevilluis.—p. 657.
*Pneumothorax for Diagnosis of Cavern. R. Borelius.—p. 661.

Splenectomy in Essential Thrombopenia.—In Grevilluis's case of essential thrombopenia with rather acute course, with massive nosebleed as the main symptom, and with internal therapy ineffective, splenectomy, done at a stage when the patient was greatly exhausted, resulted in an immediate recession of all symptoms and after a couple of months the number of blood platelets was normal.

Pneumothorax for Diagnosis of Cavern.—Borelius presents two cases in which artificial pneumothorax, induced for diagnostic purposes, showed that a roentgenologically indistinct circular shadow was a cavern, and four cases in which pneumothorax, induced for therapeutic purposes, revealed the presence of caverns previously suspected or not visible. The result is due, he says, to the greater prominence after pneumothorax of the formerly indistinct circular shadows and to the shifting of the shadows, usually toward the hilus. This change of position constitutes the strongest evidence for an intrapulmonary (and not pleural) process. Since the pneumothorax is not wholly without danger, it is advised only when other methods fail, and it should not be applied in ambulant cases.

Nordisk Medicinsk Tidskrift, Uppsala

3: 561-576 (Sept. 5) 1931

Review of Toxicology of Use of Tobacco and Some Related Questions. Ulf v. Euler.—p. 561.
Has Tuberculosis Infection in Childhood Ever Been Generally Widespread? J. Heimbeck.—p. 567.
Remarks on Professor Holmdahl's Article "Tuberculosis and Crusade Against Tuberculosis." Sig. Magnusson.—p. 573.

3: 577-592 (Sept. 12) 1931

Virulence of B C G. K. A. Jensen.—p. 577.
*Problem of Pathogenesis in Megacolon. E. Ask-Upmark.—p. 581.

Problem of Pathogenesis in Megacolon.—Ask-Upmark concludes that the importance of mechanical obstruction in the pathogenesis of megacolon seems to have been exaggerated, while the conception of megacolon as a primarily congenital condition may have been undervalued. Morphologic malformation and functional abnormality in the neuromuscular apparatus of the intestine are regarded as important factors in the pathogenesis of megacolon.

3: 609-624 (Sept. 26) 1931

*Studies on Gastric Ulcer, Particularly with Regard to Nervous Symptoms. B. A. Boye.—p. 610.
Bronchial Asthmas, Illustrated by Invalidity Insurance Commission's 625 Cases. I. H. C. Gram.—p. 616.

Studies on Gastric Ulcer: Nervous Symptoms.—Boye's material comprises 937 cases of ulcer, partly established cases, partly cases with probable diagnosis of ulcer (about one third). He finds that the proportionate frequency of the condition in men and women is as 3 to 2. In both sexes the subjective symptoms, including nervous symptoms, show a tendency to increase as the objective ones decrease. In the group with numerous objective symptoms, men dominate; in the group with few objective symptoms, women. Nervous symptoms are common, especially in women.

Upsala Läkareförenings Förhandlingar, Uppsala

37: 1-213 (Sept. 21) 1931

*Septic Pleural Empyemas with Especial Regard to Late Results. E. Schildt.—p. 2.
*Case of Endometrioma with Localization in Round Ligament of Uterus. H. Marcus.—p. 207.

Septic Pleural Empyemas: Late Results.—Schildt reports 289 cases, without complications in the form of tuberculosis, actinomycosis or tumor, in which the patients were treated from 1916 to 1929. There was marked increase in the number of cases of empyema during the influenza years. About 50 per cent of the cases occurred in the first twenty years of life and about 70 per cent in the first thirty. Over 61 per cent were in the male sex. Etiologically about 85 per cent of the cases are ascribed to certain or probable pulmonary diseases. Streptococcus infection was the most frequent infection. Typical complications of empyema appeared in fifty-nine cases, with fatal outcome in about 60 per cent. Subperiosteal resection of the ribs or intercostal incision with open drainage was the chief method of treatment. After-examination was done in over 95 per cent of the cases. Permanent recovery for from more than one to over fourteen years was seen in 178 cases, or about 61.5 per cent of the total number. There was recurrence in 32 cases, or about 11 per cent, appearing within four years in 97 per cent of the cases; no recurrence was noted after five years. There were fifteen chronic cases, or about 5 per cent. Restored full ability to work after six months was seen in 80 per cent of the 178 cases. The total mortality was 18.6 per cent.

Endometrioma with Localization in Round Ligament.—Marcus's patient had had for two years a slowly increasing swelling in the right groin, without symptoms except a sense of weight and tension on menstruation. Examination showed a tumor-like formation of firm consistency about 3 or 4 cm. long and of the thickness of the little finger, situated corresponding to the course of the round ligament and attached to the pubic bone. The microscopic diagnosis following extirpation was adenomyofibrosis.

There was no tenderness over the nerve trunks. He was restless, unable to remain in bed and screamed and cried. Bromides and barbital were administered, and the following morning he returned to work.

Within a few days there was a recurrence of pain in both extremities which also yielded to sedative agents. Within a couple of weeks, however, the patient complained of dyspnea and precordial oppression. About November 1 he developed a bilateral hydrothorax, which was tapped, affording the patient considerable relief. November 4, when the nurse returned after the absence of a few minutes, the patient was dead.

The character of the subjective manifestations as well as the marked neurotic phenomena certainly justified regarding this patient as psychoneurotic. In retrospect, the pains and emotional disturbances masked a pronounced case of myocardial degeneration.

Case 2.—A. S., a woman, aged 52, referred in June, 1929, complained of general weakness and nervousness and inability to walk because of weakness and pain in the back. The family history and past medical history were irrelevent. Although "highly strung," she had never had a nervous breakdown. Her present illness began several months previously with generalized pain and nervousness, especially pain in the eyes. In February, 1929, she was studied for two weeks in a teaching hospital, where the investigations failed to reveal organic disease. In the past few weeks her condition became much worse. She was unable to walk about because of weakness in the back. When seen at her home, the patient looked thin, pale, anxious and unwilling to move out of bed. The internist who referred the patient gave the assurance that his studies and those made in the hospital excluded somatic disease. Neurologic examination revealed a pseudoptosis of the left upper eyelid and inability to raise the right arm because of pain in the shoulder. She refused to leave the bed or even to sit up. A psychologic examination revealed that she was distressed over two unmarried daughters who were rather promiscuous in their mode of living. She cried and was anxious and depressed. The patient was hypnotized without difficulty, and in ten minutes walked out of bed much relieved. She returned several times for treatment, showing improvement, with the exception of "fainting spells" with partial loss of consciousness, which were attributed to emotional upsets.

July 2, the patient suffered a fainting spell. She was motionless, with an ashen gray face and blue lips and finger nails. Her extremities were cold, she perspired profusely, the pulse rate was rapid and feeble, and the heart sounds were poor. There was no pulmonary edema. She rallied with digitalis and caffeine and was admitted to the Graduate Hospital. She had several similar attacks while in the hospital. During one of them the blood sugar rose to 260 mg. per hundred cubic centimeters, while between attacks the blood sugar was under 100. She died, July 5, during one of these attacks. The cause of death was assigned to coronary occlusion.

The psychogenic background, the bizarreness of the symptoms, the absence of objective signs after intensive study and the favorable reaction to hypnosis all favored a diagnosis of psychoneurosis. However, the basic manifestations were undoubtedly attributable to myocarditis.

PULMONARY GROUP

Pulmonary disturbances of psychogenic origin are not nearly as common as those of the gastro-intestinal or cardiac systems. Nevertheless, cough, disturbance of rate and rhythm of respiration, and even asthma may be of functional origin. The fear of tuberculosis in some cases is one of the commonest manifestations of psychoneurosis. Nevertheless, psychogenic causes of pulmonary manifestations are relatively rare. Whether they may be due to relatively poorer innervation by the vegetative system and relatively richer somatic innervation (abdominal walls, intercostal muscles, parietal pleura) in comparison to other viscera is difficult to state and requires further investigation.

That pulmonary disease, especially tuberculosis, may cause mental symptoms is well known. Head[3] ascribes it in part to reflex pain referred from the diseased viscus and partly to the fever, loss of weight and anemia. The general clinical conception is that the mental symptoms in these cases are toxic in origin. Head points out that lesions in the upper part of the chest are not as likely to cause mental changes as lesions in the basal lobe. We feel that this is not due so much to the reflected pain from the lower lobe, as claimed by Head, as to the fact that when tuberculosis invades the lower lobe the case is usually more advanced and the patient more toxic.

There are cases in which neuropsychiatric manifestations mask underlying pulmonary pathologic changes. Among these may be mentioned early pulmonary tuberculosis especially in late adolescence, and carcinomatosis.

Case 3.—A woman, aged 39, seen, Feb. 1, 1928, had developed, eight years previous to admission to the Orthopedic Hospital, a pelvic peritonitis two months after the birth of a second child, following which there was a removal of her uterus, tubes and ovaries with the establishment of a complete surgical menopause. Following this she began to have attacks of nervous exhaustion, which were ascribed to the consequences of the operation and to certain domestic difficulties. Three months prior to her admission, the patient was in an automobile accident in which she suffered a concussion following a blow on the head. At the time of the accident, she remembered taking a deep breath, and following her recovery from the concussion for a period of three months she complained of difficulty in getting her breath and of pains across her shoulders. This was followed by severe crying spells, considerable mental depression and general exhaustion, in which the patient felt unable to do her usual housework. Her respiratory difficulties were much worse whenever she became emotionally upset. In addition, she complained of a gripping feeling in her throat and she had a tendency to cough to get rid of it. She had to use two pillows instead of one when lying in bed.

On admission she had a constant dull aching pain over the scapula. At times this became more severe and would shoot and radiate down the left flank and around the chest to the left breast. On admission to the hospital this was her chief complaint, and it was thought that all her symptoms were of a psychoneurotic character and had been present a long time but had been aggravated by the automobile accident. After her admission the pains increased and in addition she began to complain of nausea and vomiting. While under observation she developed a weakness and numbness in the right upper limb, but physical examination did not denote anything. Later on, a roentgen examination showed that she had a primary carcinoma of the lung. Following this she developed an increasing weakness in the right side, which developed into a right hemiplegia. This was followed by generalized convulsions, limited mostly to the right side, and the patient finally died of multiple carcinomas of the brain.

The diagnosis in this case was particularly difficult in the beginning because of the history of the old neurosis with the more recent one of trauma following an automobile accident in which the question of compensation entered. The medical man who referred her was undoubtedly swayed by this history and on her admission to the hospital we also felt that the case might be one of traumatic neurosis. It was, however, the character of the pains, which were of a rootlike variety, that first directed our attention to the possibility of the presence of a spinal cord involvement. Roentgen examination disclosed the presence of the carcinoma and the later symptoms were so outstanding that there was no doubt left as to the proper diagnosis.

by nausea and vomiting, but there was marked constipation. The entire attitude of the patient was that of pronounced psychoneurosis. He showed improvement with a bromide treatment, suggestion and persuasion, gaining and losing weight depending on his emotional state. He had occasional fainting spells, frequently caused by emotional stress. In April, 1924, he had one of these attacks and his physician was summoned. There was also a history of an argument with the foreman in the shop in which he was employed, after which he fainted. His wife casually remarked that the patient had had a bowel movement which was black. Examination revealed that it was melena, and the patient was admitted to the university hospital without delay. A roentgen examination within a few days revealed a duodenal ulcer, and, at an operation by Dr. I. S. Ravdin, he was found to have a hard mass in the region of the duodenum. He died a few weeks later of metastases of carcinoma of the duodenum.

This man undoubtedly had an organic lesion that had not been carefully investigated. The symptoms yielded to psychologic treatment until malignant degeneration set in and the organic manifestations became evident.

Case 8.—J. B., a man, aged 38, a fireman, with a marked psychopathic family history, when first seen in May, 1928, complained of attacks of precordial distress, dyspnea, anxiety and pronounced nervousness. He had been examined by police surgeons at the fire-house on two or three occasions, and the case was diagnosed as "hysteria." Between attacks, he seemed to have been in fairly good health excepting for somewhat increased fatigability. The patient was rather undersized though fairly well nourished and weighed 135 pounds (61 Kg.). The size of the heart was within normal limits, the pulse rate 96, the blood pressure 166 systolic and 70 diastolic. There was no exophthalmos and no von Graefe sign. The thyroid was slightly enlarged. The abdomen was soft and somewhat tender around the umbilicus and just to the median line of the right lower quadrant. The patient was admitted to the Policeman's and Fireman's Ward at the Philadelphia General Hospital, where all examinations, including a complete gastro-intestinal study, were entirely negative. However, from observation over a period of months, it was felt that his attacks were due to a mechanical cause, probably abdominal in location. A laparotomy was performed (Dr. Hubley Owen) and an extremely long appendix, extending from the retrocecal region to the retrohepatic region, was found and removed. The patient made an uneventful recovery, returning to duty within eight weeks.

He remained in good health until the spring of 1926, when he developed pronounced anxiety, restlessness, insomnia, loss of appetite and weight, and feared such things as going out into the street. At this time there had been a great amount of worry due to illness and domestic discord within the family. At the Orthopedic Hospital careful studies failed to reveal organic etiology and within a few months he recovered from an anxiety neurosis, returning to active duty in the fire bureau, where he has been ever since.

At the time of the attack in 1923, the patient was regarded as definitely psychoneurotic. However, he appeared to be in fairly good health between attacks. There was no psychogenic background, and on examination it was felt that there was visceral difficulty to account for his trouble. This was verified both by the operative observations and the subsequent recovery. The second episode, in 1926, was associated with definite psychogenic factors, and in addition the character of the symptoms was such that they bespoke very clearly their psychologic nature.

Case 9.—H. R., a man, aged 42, a broker, came to Philadelphia in September, 1927, complaining of nervousness, insomnia, restlessness, loss of appetite and vague abdominal discomfort, not related to the intake of food. The condition was gradual in onset and of about four months' duration. Family and past medical histories were irrelevant. The family ascribed the trouble to financial reverses, and his wife insisted on Christian science treatment. Physical examinations and laboratory investigations made in Boston and repeated in Philadelphia disclosed no positive finding excepting a mild secondary anemia; roentgen examination revealed no abnormalities. A psychiatric examination disclosed a mild anxiety state without definite depression and a persistent, gradually increasing complaint of abdominal discomfort with very little emotional coloring. An exploratory laparotomy was advised, and an operation in October, 1927, by Dr. Michael Warmuth revealed carcinomatosis of the peritoneal cavity with the primary lesion in the small intestine.

A careful analysis of the case, negative family and past medical histories, the gradual onset of the abdominal discomfort, the secondary character of the nervous symptoms, and especially the character of emotional reaction, aroused the suspicion of primary visceral disease. Despite negative physical and laboratory examinations an operation was advocated.

Case 10.—J. L., a man, aged 37, a knitter, was referred by the genito-urinary clinic because of sharp shooting pain in the perineum, of several months' duration. Complete genito-urinary studies, including catheterization of both kidneys, revealed no abnormalities or disease of the spinal cord, and a neurosis was suspected. Neuropsychiatric studies revealed no evidence of organic neurologic disease, nor was there evidence of neurosis. A rectal examination revealed cryptitis and internal hemorrhoids. An operation gave complete relief within a few days.

In this case, the very absence of neuropsychiatric symptoms bespoke the existence of visceral disease.

Case 11.—F. H., a boy, aged 12 years, in September, 1922, suddenly developed epileptiform convulsions. He was studied most carefully from every angle, having been under close medical observation since childhood, owing to the fact that his was a case of asymmetrical development of the limbs without paralysis or evidence of asymmetrical cranial development. A few months after the first convulsions acute appendicitis developed and he was operated on, but the removal of the appendix failed to prevent the recurrence of the convulsions. A complete study of the cranium and accessory sinuses by Dr. G. E. Pfahler was entirely negative. A comprehensive gastro-intestinal study showed some evidence of cecal stasis, thought to be due to postoperative adhesions. Operation revealed only a few minor filmy bands, which were not considered sufficient to produce symptoms of obstruction but were removed. The convulsions returned with moderate severity but this time the patient's mother made the observation that they were always coincident with drinking milk. Exclusion of milk from the boy's diet was followed by a complete recovery, and there has been no recurrence of the convulsions since June, 1924.

This appears to be a true case of protein anaphylaxis with epileptiform convulsions. Such cases have been reported by Ward and Patterson.[12] While anaphylaxis cannot be regarded as a visceral disease, it was deemed advisable to bring it into relation with neuropsychiatric counterfeits.

GENITO-URINARY GROUP

Pain over the bladder region, painful and frequent urination, impotence, premature ejaculation and failure of erectile power are frequently of psychogenic origin. This is not difficult to understand when it is borne in mind that the pelvic organs are innervated to a great extent by the involuntary nervous system—the lumbar sympathetic and sacral autonomic—and that these are subject to segmental and suprasegmental—cortical and subcortical innervation [9]—and therefore by psychic and especially emotional states. The pudendal nerve—the incooperativeness preclude suggested investigation. A second factor is the assumption of the presence of a psychoneurosis because of the richness, bizarreness and variability of "functional" symptoms, which make further investigations seem unnecessary (cases 1, 2, 3, 4, 5, 7 and 12). A third factor is the assumption that the present symptoms are merely a variation of a former reaction to a psychogenic situation (cases 1, 5, 7 and 8). In the second and third factors not only a great deal of care but also much judgment must be exercised.

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[12] Ward, J. F., and Patterson, H. A.: Protein Sensitization in Epilepsy, Arch. Neurol. & Psychiat. 17: 427 (April) 1927.

2. To avoid such errors as those just quoted, the following formulation seems justifiable in the practice of neuropsychiatry:

(*a*) Every case should be considered from the standpoint of personality make-up with reference to heredity, early development, school and vocational records, sexual and marital factors, social and economic adaptability, and the individual's reaction, at various periods, to environmental conditions. The latter includes disease, injury, and mental and physical storms.

(*b*) A careful history, especially the chronological development of the symptoms, should be obtained from the patient. The assistance of relatives and friends may be needed. Additional valuable information is frequently obtained in reexamination.

(*c*) Every case should receive a complete somatic as well as neurologic examination. Every neuropsychiatrist should be sufficiently well trained to do this and in every case urinalysis, complete blood count, blood chemistry and blood Wassermann tests should be made.

(*d*) No special examination should be made until the neuropsychiatrist has obtained a view of the total situation—of the formulation as to what possible physical and psychic changes are present in the patient with the particular make-up. This requires a psychologic evaluation of the case—a difficult and often time consuming method.

(*e*) Every one seems to agree that no case should be diagnosed as psychoneurosis until all indicated investigations are completed. Some insist that a diagnosis of psychoneurosis should always be one of exclusion. This, like blind faith in laboratory procedures, has its disadvantages: in some cases certain avoidable surgical procedures, especially in the nasopharynx and abdomen, only tend to accentuate the already existing vicious circle; and, lastly, it is felt that, in competent hands, neuropsychiatric manifestations can be evaluated on their own merits. This requires time consuming, repeated interviews. Special examinations, therefore, are best directed when the neuropsychiatric investigation justifies them. When doubt exists, however, the patient is justifiably subjected to investigations.

(*f*) From the standpoint of neuropsychiatry, every disease must be considered as having both a somatic and a psychic component. These two components are indivisible and should be evaluated in their relation to etiology and to the total situation. With this broad psychologic point of view, errors in diagnosis may frequently be avoided.

SUMMARY

1. A variety of neuropsychiatric manifestations often mask visceral disease of etiologic significance.

2. Visceral disease may give rise to neurologic manifestations by reason of the fact that the viscera are innervated by the vegetative nervous system. They are not only influenced by the segmental and suprasegmental portions of the central nervous system and of the emotions but in turn are capable, when disturbed, of giving rise to a disturbance in the emotions and by reason of reflected pain to all sorts of peripheral phenomena. Psychic and emotional states influence the vegetative nervous system and visceral functions and vice versa.

3. Illustrative cases are given wherein neuropsychiatric symptoms have masked cardiac, pulmonary, gastro-intestial, pelvic and genito-urinary diseases.

4. The causes of errors in diagnoses are traceable to faulty and incomplete examinations, to the failure of judgment and proper evaluation of neuropsychiatric manifestations, and to the fact that in predisposed individuals the earliest manifestations of visceral disease may be purely psychiatric in type.

5. From the neuropsychiatric standpoint, disease cannot be regarded as purely psychic or purely somatic. Every disease has a somatic as well as a psychic component and should be viewed from that standpoint for both diagnostic and therapeutic purposes. Moreover, every case should be studied in the light of a total situation.

ABSTRACT OF DISCUSSION

Dr. Julian M. Wolfsohn, San Francisco: Sometimes a neurosis is due to a physical cause and sometimes it has its starting from a mental cause. About a month ago I read a paper before the State Medical Society of California on "Traumatic Disease as a Cause of Mental Disorder," and I brought forward cases very similar to the cases cited by Drs. Weisenburg, Pleasants and Yaskin. The conclusions in that paper were just about the same. As an illustration, one of the individuals who had manifestations of psychosis for about a year, in which he went through a severe neurotic phase, was agitated and uncontrollable; but was finally in a position in which a physical examination could be made, a year and a half after the onset. At that time, tenderness was found in the right iliac fossa. At operation an abscess was found, containing about 2 ounces of thick, green pus, which had evidently been there thirty-two or thirty-three years. The patient was operated on and in two weeks went home, and has been free from any complaints whatever for ten years.

Dr. David C. Wilson, University, Va.: It is highly important to stress that the carcinoma or the ulcer, or whatever the patient has, is not the psychoneurosis; that is, because a person has a gallbladder, it doesn't mean that he cannot have a psychoneurosis. A psychoneurosis is a reduction of that person's personality, a part reaction, as it were; and just because the diagnosis was made in these cases of some organic lesion this does not mean that the patients did not have a psychoneurosis also. The authors made another point which I should like to have them discuss further. They seemed to imply that certain visceral diseases, organic diseases, had some certain rather definite personality reaction; that is, tuberculosis had some kind of definite nervous reaction; carcinoma, another. I don't think they meant that, but I should like them to bring out that point. Certainly in handling people in tuberculosis sanatoriums one sees a great many different psychoneurotic reactions, depending, as one would expect, on the different personalities of the patients.

Dr. Henry Pleasants, Jr., West Chester, Pa.: One of the cases to which, because of lack of time, attention was not called was that of an individual who showed marked neuropsychiatric disturbance, which was extremely difficult to fathom; in fact, the patient at one time presented the picture of an early pernicious anemia before blood changes are demonstrable. This individual was carefully studied and, during this period, a depressive type of psychosis developed. We could not find anything as a cause of the factor until finally we discovered a streptococcus infection of the colon, which under appropriate vaccine, cleared up, its disappearance being accompanied by the appearance of hydrochloric acid in the gastric contents which had been absent before. This was an absolute instance of a masking of the somatic symptoms by neuropsychiatric manifestations.

locytosis, as distinguished from a nearly complete prostration of the bone marrow, experimentally. A possible hint in this direction may be found in the relative frequency with which an allergic tendency has been observed in the victims of the disease. At present, however, our information on this subject is too scanty to justify conclusions.

In no aspect of the disease do opinions differ so widely as in the matter of treatment. Most of the cases in the literature have been treated symptomatically with stimulants and local antiseptics; many have been treated with foreign proteins but without perceptible effect. The production of a sterile turpentine abscess has been followed by a turn for the better,[10] and the latter has repeatedly been the case after injections of small doses of neoarsphenamine. Reznikoff [11] has reported three recoveries out of four cases of agranulocytosis treated with intravenous injections of guanine or adenine; but these results require confirmation by others, and in one case so treated at the Jewish Hospital of St. Louis no beneficial effect of any kind could be observed. Transfusions [12] have been followed by a sharp rise in the granulocyte count followed by recovery, and the same has been true of small stimulating doses of x-rays [13] applied to the long bones. Other observers, however, have failed to obtain any benefit either from transfusions [14] or from x-rays.[15]

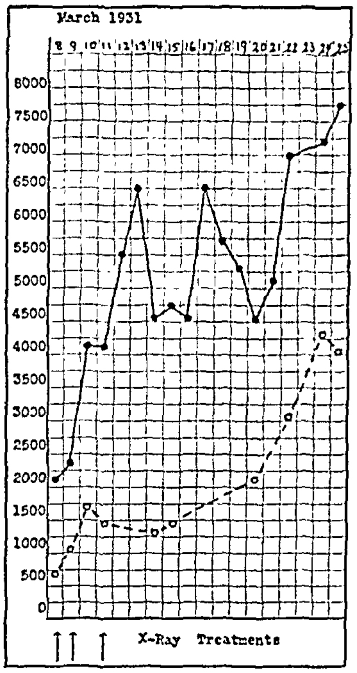

Chart 1.—Leukocytes (solid line) and granulocytes (broken line) in case 1.

The difficulty of estimating the value of therapeutic measures in agranulocytosis is twofold: no one observer, possibly excepting Friedmann with his forty-three cases treated by means of irradiation, has seen enough cases of agranulocytosis to be justified in drawing conclusions from his own experience; and the not infrequent spontaneous recovery from agranulocytosis makes it difficult, in any concrete case, to be certain of the rôle played by treatment in the patient's recovery.

Until recently, the total number of cases reported has not sufficed for the employment of statistical methods. At present, however, this is no longer the case. A review of the literature accessible to us, which unfortunately does not include the Slavic nor all of the Scandinavian, affords 334 well authenticated cases of agranulocytosis, care having been taken to exclude the other forms of bone marrow injury previously mentioned. An analysis of these cases reveals some interesting facts, which may be summarized as follows:[16]

1. Of the 330 cases in which the sex was noted, 104 were in males and 226 in females, a proportion of a little over 2:1; among the males the total mortality was 75 per cent; among the females 77 per cent.

2. The inflammatory lesions were distributed as follows: angina, 241, or 74 per cent; stomatitis, 36, or 11 per cent; no lesion of any kind, 17, or 5 per cent; anal ulcers, 13, or 4 per cent; other lesions, 18, or 5 per cent.

3. The age incidence was as follows: under 20 years, 26, or 9 per cent; from 20 to 40 years, 117, or 38 per cent; from 40 to 60 years, 127, or 40 per cent; over 60 years, 43, or 13 per cent.

4. In analyzing the results of therapeutic measures, it has seemed necessary to exclude from consideration those cases which terminate fatally within forty-eight hours of the time treatment was instituted. These were either fulminant cases in which no treatment could have been of avail, or cases which had been neglected until the end was near. It would obviously be unfair to estimate the value of any therapeutic measure when applied to a moribund patient. With this proviso, the results of therapy as recorded in the literature are shown in the accompanying table.

Results of Therapeutic Measures

	Cases	Deaths	*Mortality,* per Cent
Cases treated by means of irradiation............	64	34	53
Cases treated by means of transfusion............	53	34	64
Cases treated with arsphenamine	33	24	73
Cases treated with other therapeutic measures...	178	133	75

Since Friedemann has reported such a large portion of all the cases of agranulocytosis treated by means of x-rays, it might be thought that the statistics may have been loaded by his favorable results and that the latter should be looked on somewhat skeptically. This is not the case. Friedemann and Elkeles [13] reported, in all, forty-three cases so treated. Of these patients, eighteen were moribund when first seen. Of the remaining twenty-five, twelve died, making a mortality of 48 per cent. Other observers have reported, in all, thirty-nine cases, in four of which the patients were moribund. Of the thirty-five remaining patients, twenty died, making a mortality of 57 per cent. Our own four cases showed a mortality of 50 per cent, figures which harmonize sufficiently well for so small a group.

In any event, the figures indicate definitely that transfusions and roentgen therapy are useful in the treatment of agranulocytosis and that, of the two, irradiation of the long bones gives the better results. It will probably be wise to use both methods in the treatment of a severe case, and doubtless the results will be the better, the earlier these methods are applied.

During the past year, seven patients with agranulocytosis entered the Jewish Hospital of St. Louis. Of these, two were moribund when admitted and died the same day; a third received only symptomatic treatment. The other four illustrate very well some of the features of roentgen therapy. We use 200 kilovolts corrected appearance of a suppuration in the middle ear, she was transferred to the Jewish Hospital, with a temperature of 102, pulse 100 and respiration 20. Physical examination gave negative results except for a purulent discharge from the left ear and an injected pharynx. A blood count showed 4,400,000 red cells, 80 per cent hemoglobin, and 3,300 white cells, all of which were large and small lymphocytes. A blood culture was negative. In spite of adequate local treatment, the temperature remained high; the pharynx rapidly became phlegmonous, with necrotic areas; the prostration grew extreme, and the white blood cell count fell to 650 without any granulocytes. The patient appeared moribund. Beginning March 4, she received six daily irradiations over the long bones, 0.1 the first day and 0.05 skin unit dose thereafter. The white blood cell count and the granulocyte count rose sharply to far above the normal (chart 4); the fever ceased; the angina cleared up, and the patient became clinically well. Her condition remained satisfactory until March 20. Two days later, concomitantly with a drop in the white blood cell count and the granulocyte count, the pharynx again became injected. Four daily irradiations of 0.05 skin unit dose over the long bones failed to halt the drop in the white blood cell count and the granulocyte count; the fever reappeared, and the angina became phlegmonous. Liver feeding, the injection of leukocyte extract and of "nucleotids," according to the method of Reznikoff, were equally without effect. The patient became increasingly prostrated, finally grew comatose, and died, April 1. Autopsy was essentially negative except for the usual bone marrow changes characteristic of agranulocytosis.

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[10] Bock and Wiede (footnote 1).

[11] Reznikoff, P.: J. Clin. Investigation **9:** 381-391 (Dec.) 1930.

[12] Reye, E.: Med. Klin. **24:** 1437-1438 (Sept. 14) 1928. Finnigan, F. R.: J. Missouri M. A. **24:** 258 (June) 1927. Rosenthal, N.: Laryngoscope **40:** 592-597 (Aug.) 1930.

[13] Friedemann, U., and Elkeles, A.: Deutsche med. Wchnschr. **56:** 947-950 (June 6) 1930. [illegible] Med. Klin. **24:** 1236-1237 (Aug. 10) 1928. Starlinger [illegible] **7:** 866, 1928.

[14] Leuchtenberger, R.: [illegible] 11 (Oct.) 1929. Pfab, B.: Wien. klin. Wchnschr. [illegible]) 1925.

[15] Rosenthal, N. (footnote 12). Schultz, W.: Klin. Wchnschr. **8:** 1530-1532 (Aug. 13) 1929.

[16] It will be noted that the totals in the different classifications do not tally. The reason for this is twofold: First, a number of the case reports fail to state the sex of the patient, others the age; some do not even note the site of the inflammatory lesion. Second, in analyzing the therapeutic results, cases of complete and long continued recovery, with subsequent relapse, were counted once for each attack. Only the extraordinary case of Rutledge, Hansen-Pruess and Thayer, with its innumerable recurrences recovering without therapy, was counted but once.

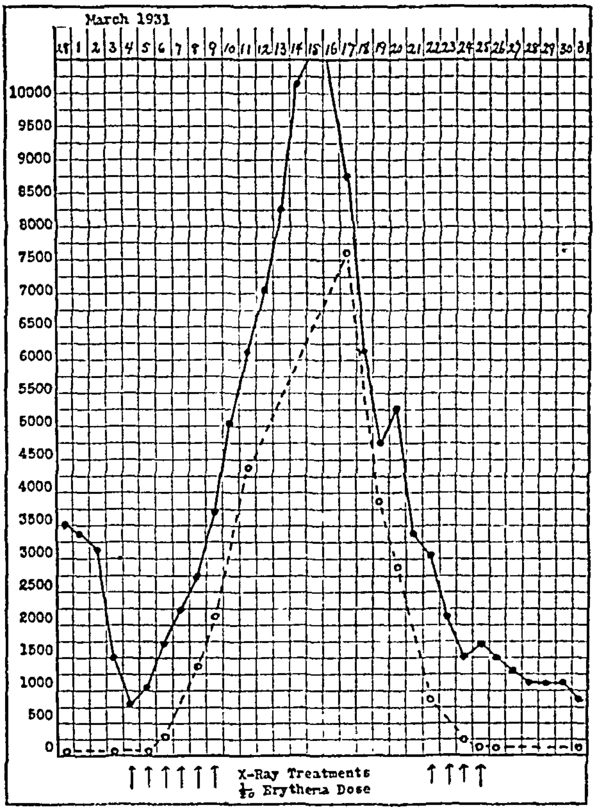

Chart 4.—Leukocytes (solid line) and granulocytes (broken line) in case 4.

COMMENT

An inspection of the blood charts in these four cases can hardly fail to justify the conclusion that stimulating doses of x-rays are an effective therapeutic measure in agranulocytosis, provided the injury to the bone marrow is not too extreme. In two of the cases recovery was permanent, at least for the time being. In the other two the first response was also satisfactory. Apparently, however, the unknown toxic agent, obviously independent of the angina, continued to act, and finally depressed the bone marrow function to such an extent that neither roentgen therapy nor any of the other measures used were of avail. It is of interest to note that in the second case roentgen therapy was only moderately effective during the patient's relapse but that the blood returned to normal concomitantly with the feeding of liver extract. Unfortunately, this is not the usual experience in these cases.

The use of roentgen therapy in agranulocytosis dates from Friedemann's first communication in 1927 and has been kept alive by repeated papers on this subject ever since. The effect of the usual massive dose on the bone marrow is well known. There is a simultaneous depression of the production of erythrocytes, leukocytes and thrombocytes, producing the picture of an aplastic anemia, often with a tendency to hemorrhage. Apparently, minimal doses have the opposite effect, especially as regards the granulocytes. Burgheim [18] exposed the long bones of a number of healthy individuals to single exposures of one-twentieth erythema dose; in each case he observed a slight but definite rise in the granulocyte count, often within two hours. Thoma gave roentgen treatments to a number of typhoid patients with marked leukopenia and observed a rise in the leukocyte count of from 1,000 to 3,000. In diseased bone marrow the effect of roentgen therapy appears to be still more marked. In three of our cases the rapidity with which the granulocytes regenerated after the first few irradiations speaks strongly for the value of the treatment.

What is the optimum dose of x-rays in the treatment of agranulocytosis? Friedemann uses one-twentieth erythema dose daily, and nearly all the clinicians who have used the method have followed in his footsteps. His fundamental notion is to have a quantity of rays which will assuredly not exert a depressing action on the bone marrow. But there is reason to believe that the dose was chosen a little too low. In our third and fourth cases a number of exposures with this dose were necessary to bring about a satisfactory effect on the blood picture, whereas in the second case a prompt and satisfactory effect was produced by one or two exposures with a dose five times as great. Whether the larger dose is safe as well as efficient remains to be determined by further experience.

CONCLUSIONS

1. Cases of agranulocytosis are being observed with increasing frequency, so that it may be said to have ceased to be a rare disease.

2. The symptom complex of agranulocytosis has been circumscribed somewhat arbitrarily. While it is convenient to distinguish it from the bone marrow depression observed in benzene poisoning, in the course of antisyphilitic treatment and in the aleukemic stage of lymphatic leukemia, borderline cases are not infrequent, in which proper classification is difficult.

3. Cases 2 and 3 show clearly that the fall in the granulocytic blood count may precede the appearance of a sore throat. A study of the literature reveals numerous similar observations and justifies the conclusion that the agranulocytic blood picture is the cause and not the result of the angina.

4. Agranulocytosis occurs about twice as frequently in women as in men; the mortality in the two sexes is about the same.

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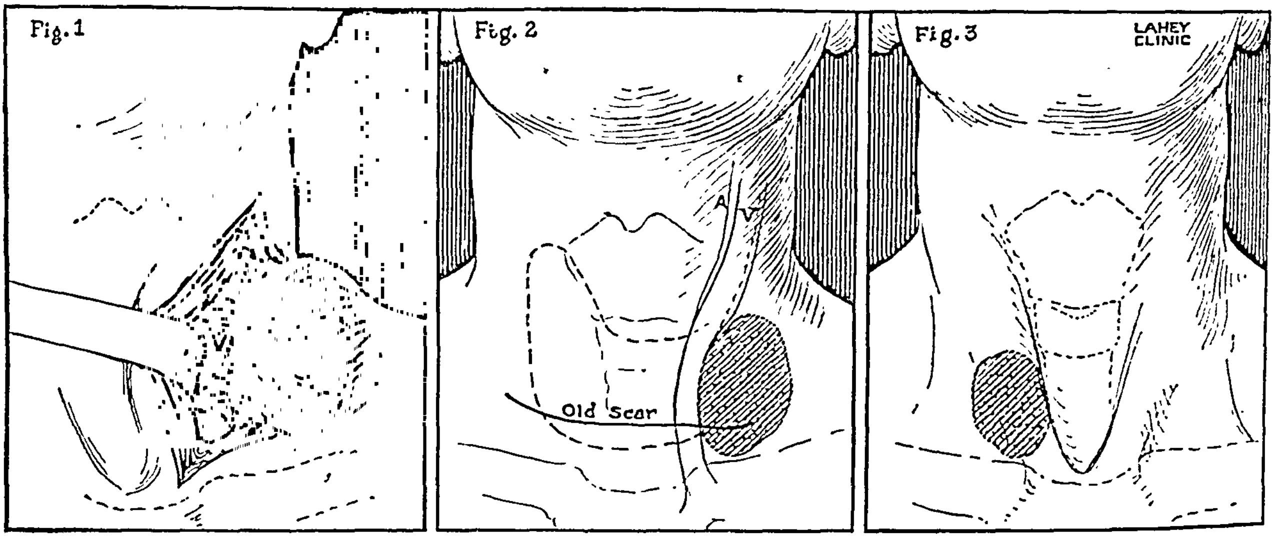
[18] Burgheim, F.: Strahlentherapie 38: 152-156, 1930.

cases were proved to have bilateral involvement. The diagnosis of lateral aberrant thyroid is rarely made before operation. A preoperative diagnosis was made in two of our patients without biopsy, but these were in recent cases after several had been observed. In any consideration of cervical tumors this condition should be thought of, although no positive diagnosis can be made without a biopsy. Three of our patients had had a biopsy before coming to us. In our series a diagnosis of tuberculous glands was made three times; Hodgkin's disease, branchial cyst, dermoid cyst, adenoma of the thyroid and carcinoma or sentinel gland were made each once. Other conditions which must be considered are tumors of nerve origin, carotid body tumors, lipomas, fibromas and carcinomas of nasal or pharyngeal origin.

The operative treatment in our cases was determined by the extent of the tumor. In five, local excisions were done. Four had local excisions together with a biopsy of the main thyroid or hemithyroidectomy. Four had radical block dissections of the neck with removal of the internal jugular vein. The main thyroid gland was examined by palpation and direct inspection, and any portion appearing abnormal was removed.



Figs. 1, 2 and 3 (cases 1, 2 and 3).—Wide variation in size, number and position of lateral aberrant thyroid nodules.

Even with an incorrect preoperative diagnosis the condition can usually be recognized at operation. In the discrete type that we have seen the surface of the tumor appears coarsely lobulated and divided by vessels much as in the case of the normal thyroid lobe. Smaller ones are usually solid tumors and are quite granular on their surface. Colloid is not usually abundant. In the larger discrete tumors, central areas of necrosis are present. When multiple tumor nodules are found, the same characteristics may be in evidence; but all our cases of this type have shown a distinctive coloring. On exposure of the nodules, bluish black areas are seen alternated with the gray or brownish red contrasting thyroid tissue. This could readily be confused with the metastatic glands of melanotic sarcoma. The dark coloring, however, is due to small areas of hemorrhage. Hyperplastic lymph glands are occasionally seen in association with them. The nodules were found adherent to the internal jugular vein four times, and in one instance a thin portion was left where it was attached to the common carotid artery.

The microscopic examination of these glands has shown a characteristic picture. All have shown the same papillary type of structure which is recognized as papillary cystadenoma. Six showed this type of structure without invasive characteristics and without marked epithelial proliferation. Five showed malignant characteristics consisting of invasion of muscles and involvement of the regional lymph nodes. Two showed definite adenocarcinoma. One patient with multiple aberrant nodules showed hyperplasia and moderate colloid storage in the nodules. The metabolism test was normal and there was no change in the main body of the thyroid gland. Only four showed any appreciable amount of colloid, so that if this finding was considered as the most important in their recognition as of thyroid origin it would be difficult to recognize some of them. In six, a portion of the lobe on the side of the aberrant thyroid was removed. One showed hyperplasia, one showed an adenomatous structure, three showed areas of papillary cystadenoma which were thought to be malignant and of the same character and grade of malignancy as that evidenced in the lateral thyroid tumor nodules. One showed papillary adenocarcinoma in the nodule in the lobe on the same side.

It is, of course, impossible to state in the four patients that showed the same type of structure in the thyroid gland as in the lateral aberrant thyroid which was the primary site of the tumor. Clute and Warren,[8] in reviewing cases of carcinoma of the thyroid seen in this clinic, found 24 per cent of them showing papillary cystadenoma or papillary adenocarcinoma. It is quite possible that a considerable number of these tumors arise from the lateral anlage of the thyroid which normally atrophies, thus having an origin like that of the lateral aberrant thyroid tumors. The degree of malignancy and the prognosis in these cases of papillary cystadenoma of the thyroid and lateral aberrant thyroid are very similar.

The first four of our patients had no subsequent treatment, while the remaining nine all had considerable postoperative roentgen therapy. In spite of the low grade of malignancy we consider it advisable to give all of them this treatment after removal of the tumors.

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[8] Clute, H. M., and Warren, Shields: Cancer of the Thyroid, Am. J. Cancer **15**: 2563 (Oct.) 1931.

cystadenoma. In considering this group of cervical tumors, wish to point out the low grade of malignancy as compared with other epithelial tumors involving the cervical glands. These tumors frequently go unrecognized and may be reported as metastatic carcinoma of unknown origin in the cervical glands. It is believed that neck tumors, outside of the thyroid gland showing papillary cystadenoma, are of lateral aberrant thyroid origin and are the result of arrested development. Satisfactory results were obtained by radical removal followed by postoperative irradiation. It is important to recognize them, since a good prognosis can be given.

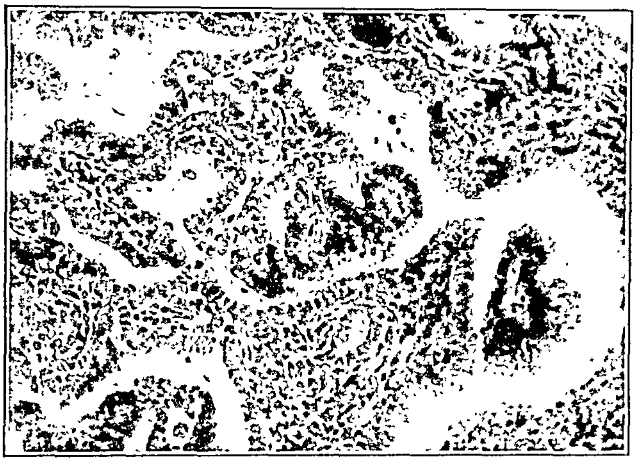

Fig. 10. Typical structure of papillary cystadenoma of a low degree of malignancy. There are few mitotic figures.

CASE ABSTRACTS

Case 1.—Mrs. B. H., aged 70, was seen at the clinic in June, 1925, when she complained of a mass the size of a hen's egg in the left side of her neck. It had been present for three years and there had been a slow growth with extension upward and backward. There had been no subjective symptoms. On examination a hard mass was found above the clavicle on the left side (fig. 1). It was somewhat adherent. The thyroid was normal and there was no adenopathy. The diagnoses of tuberculous cervical gland, Hodgkin's disease and lymphosarcoma were considered.

At operation a mass 8 cm. by 5 cm. was found in the left supraclavicular space beneath the sternomastoid muscle. The muscle was retracted medially and the mass was found to be adherent to the surrounding structures including the internal jugular vein, and appeared malignant. The tumor was removed and she made an uncomplicated recovery and she has had no subsequent treatment. The histologic diagnosis was papillary cystadenoma. An examination five years after operation showed no evidence of either local or general recurrence.

Case 2.—Miss M. R., aged 37, came to the clinic in April, 1929. A subtotal thyroidectomy for exophthalmic goiter had been done sixteen years previously. She apparently had made a good recovery but at one time was reported to have myxedema. A year before our examination she developed dyspnea, precordial pain and auricular fibrillation. Four years previously a tumor had been removed from above her left tonsil. Examination showed an old thyroid scar with a mass 2 inches (5 cm.) in diameter beneath the left angle of the incision (fig. 2). It did not move with deglutition. The right lobe of the thyroid appeared to be enlarged. A preoperative diagnosis of carcinoma of the cervical glands, probably of pharyngeal origin, was made. At operation the tumor was identified outside of the internal jugular vein and common carotid artery, which it displaced medially. The artery was adherent to it. The mass was excised, leaving a small thin portion adherent to the common carotid artery. On exploration of the thyroid, the left lobe appeared of normal size while the right lobe was about three times normal size and appeared hyperplastic. Since the preoperative metabolism test was +30, a right subtotal hemithyroidectomy was done. The pathologist reported that the tissue from the right lobe showed primary hyperplasia with involution and the tumor as papillary cystadenoma in an aberrant thyroid. She died sixteen months after operation with a cerebral hemorrhage, without evidence of recurrence of the tumor.

Case 3.—Miss E. T., aged 20, came to the clinic in November, 1926, complaining of enlarged glands in the right side of her neck noticed one week previously. She had noticed no symptoms related to them. She had lost 20 pounds (9 Kg.) in two years. Examination showed a firm gland just behind the lower insertion of the right sternomastoid muscle (fig. 3). At operation a tumor an inch and a half in diameter was removed from this position. It was not adherent. It presented certain characteristics of thyroid tissue. The thyroid gland was normal and not involved with the tumor. The pathologist reported it as papillary cystadenoma. She received no subsequent treatment and has had no evidence of recurrence in five and one half years.

Case 4.—F. W., a physician, aged 67, was seen in 1927 because of a tumor in the right side of the neck which had been present for twenty years without change in size. A diagnosis of adenoma of the right lobe of the thyroid was made. At operation outside of the thyroid under the sternomastoid muscle was a large, adherent mass 8 cm. by 5 cm. by 4 cm. (fig. 4) which contained a yellowish, mucoid fluid and was made up of a papillary-like structure. There were many veins scattered over the surface of the tumor. It was removed, following which the right lobe of the thyroid was exposed. A similar body 1 inch (2.5 cm.) in diameter was found in the inferior pole. No connection between the two could be demonstrated. The pathologist reported both as papillary cystadenoma. This patient received no subsequent treatment. Three years after operation there was no evidence of recurrence and no nodules could be palpated in the thyroid gland.

Case 5.—Mrs. B. B., aged 41, was seen in March, 1928. In 1921 a left hemithyroidectomy for exophthalmic goiter had been performed and in 1924 a subtotal thyroidectomy was done because of persisting symptoms. One year previously a small recurrent nodule was removed which was reported as an aberrant thyroid. Eight weeks previous to our examination a lump appeared to the right of the larynx. On examination a nodule 1 cm. in diameter was found in this position. There were clinical evidences of myxedema but the metabolism test was normal. At operation, all the deep cervical chains of lymph glands on the right side were found to be enlarged and firm with the same appearance as the lump previously described (fig. 5). They involved the internal jugular vein, so that in doing a radical dissection the vein was removed. All glands between the clavicle and the angle of the jaw were removed,

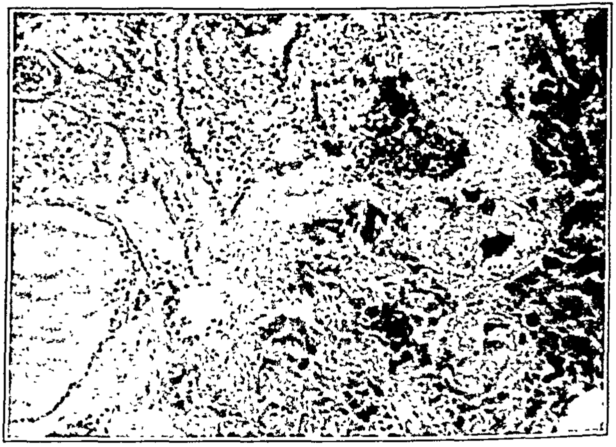

Fig. 11.—Section of aberrant thyroid tissue showing papillary cystadenoma with invasive characteristics. Strands of epithelial cells can be seen invading the stroma. Positive identification as an aberrant thyroid can be made by the presence of colloid in the section.

descending toward the thyroid gland or to the pharynx. The thyroid was normal. The operative diagnosis was branchial cyst. The pathologist reported this as papillary cystadenoma arising in aberrant thyroid tissue. The patient received postoperative roentgen therapy and there is no evidence of recurrence one year after operation.

Case 11.—I. B., a man, aged 32, was examined in June, 1930, because of swellings in the neck. For two years he had noticed a round, nontender swelling in the suprasternal notch. There was a second smaller swelling in the midline under his chin. On examination a cyst 2 by 2 cm. was demonstrated at the level of the hyoid bone in the midline. There was a second swelling 6 by 6 cm. in the suprasternal notch which was freely movable and firm (fig. 8). The diagnosis of thyroglossal cyst and dermoid cyst was made. At operation the upper swelling proved to be a typical thyroglossal cyst, and it was removed with a radical operation. On exposure of the lower mass it was found to be dark blue, coarsely lobulated and cystic. It was located above the sternothyroid and sternohyoid muscles and appeared to have a small pedicle extending below them. The thyroid gland was not involved. There were no other glands. The pathologist reported the upper tumor to be a thyroglossal cyst and the lower one a papillary cystadenoma in an aberrant thyroid. The patient has received postoperative roentgen therapy and has had no recurrence of his thyroglossal cyst. There is no evidence of recurrence in the lower part of his neck one year after operation.

Case 12.—Miss M. F. T. P., aged 48, was examined in July, 1930, because of deafness, sugar in the urine and indigestion. Ten months previously she had noticed a lump in the left side of her neck, and it had increased slightly since that time. On examination she was poorly nourished and there was a fusiform, nontender gland 3 by 2 by 2 cm. beneath the lower attachment of the left sternomastoid muscle (fig. 9). It was thought to be characteristic of the sentinal type of gland associated with carcinoma of the stomach. Roentgen studies of the stomach were negative. At operation the tumor was demonstrated beneath the lower portion of the sternomastoid muscle and beneath the omohyoid and in the area lateral to the common carotid artery and internal jugular vein. It was kidney shaped with a definite hilus, was reddish brown, and had superficial blood vessels and lobulation which suggested thyroid tissue. No other glands could be demonstrated. The thyroid gland was normal. The pathologist reported this as papillary cystadenoma. She received postoperative roentgen therapy and ten months after operation there was no evidence of recurrence.

Case 13.—Mrs. T. C., aged 30, came to the clinic in January, 1931, because of a goiter. She had noticed this swelling two years previously following her last pregnancy. For one year she had noticed increasing nervousness and irritability. There had been no loss of weight and no palpitation nor tachycardia. Her physical examination was essentially negative except for varicose veins and the local condition in her neck. There was a firm, regular mass beneath the insertion of the left sternomastoid muscle on the clavicle. A second nodule could be palpated in the upper pole of the left lobe of the thyroid. The right lobe felt normal. A preliminary diagnosis of metastatic carcinoma was made and a fluoroscopy of the stomach done to rule out this site as the primary origin of the tumor. This showed no evidence of disease. The subsequent preoperative diagnosis was aberrant thyroid. There was insufficient evidence for a diagnosis of hyperthyroidism. At operation the lower tumor was found behind and lateral to the internal jugular vein. In addition to the previously palpated mass, many of the deep cervical lymph glands were found enlarged by the same type of tumor. On exposure they had a deep, blackish tint and were smooth in outline. The glands were removed by a radical block dissection of the left side of the neck, the internal jugular vein being removed. Following this, the tumor was removed from the upper pole of the left lobe of the thyroid. The right lobe was normal. The nodule in the thyroid appeared to have the same characteristics as those of the lateral cervical tumors. The pathologist found the thyroid nodule to be malignant, papillary cystadenoma and reported the same type of structure in all the lymph nodes. There was invasion of the blood vessels in these nodules. This last operation was performed four months ago and she is at present receiving roentgen therapy.

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ABSTRACT OF DISCUSSION

Dr. C. A. Roeder, Omaha: When a ligature is placed on the superior thyroid artery, there often is an impulse shooting up the sympathetic plexus to the superior cervical ganglion, which is connected with the first, even the second spinal nerve. From here there is a spill-over into the sensory root of the trigeminal, producing pain in the lower teeth. That might be called a thyromandibular reflex. This is of some importance because the pain occassionally may persist for several weeks. The vagopinna reflex is of extreme importance because it indicates that the internal branch of the superior laryngeal nerve is involved in a ligature or clamp. This reflex passes into the ganglion of the trunk of the vagus and on through Arnold's nerve, and ends in Alderman's nerve, producing pain in the lower portion of the pinna, which may persist for several weeks. Traction alone on the superior pole will often produce this reflex. In regard to cases of toxic thyroidism without an increase in metabolic rate, this slide shows a man who had a progressive exophthalmos for one year without any signs of toxic thyroidism. In the meantime, his right orbit was explored by an eye surgeon in search of an orbital tumor. After the condition had been present for one year, the other eye started to protrude and at this time he came into the dispensary, complaining of weakness of only a few weeks' duration. He might have been in the so-called neurocirculatory asthenic state, but he continued his occupation as a truck driver and did not complain of anything during the first year. A girl who had a progressive exophthalmos for eight months or so beforehand, with a negative metabolic rate and no signs of hyperthyroidism or hypermetabolism, the condition being present for six or eight months, now has the other eye protruding. The thyroid is slowly enlarging. The metabolic rate is practically normal, close to zero. Too much reliance must not be placed on one metabolic reading. The average metabolic test in the average hands is of uncertain value and hypermetabolism, hyperthyroidism and toxic thyroidism should not be considered synonymous. In regard to aberrant thyroid, I have never had a case in my experience and naturally cannot say anything about it. This presentation has been most instructive.

Dr. William Barclay Parsons, Jr., New York: I have refused to operate on a number of patients whose symptoms, although closely simulating hyperthyroidism, seemed to be on a basis of psychoneurosis, but who showed a definite preference for hot rather than for cold weather. This is of course not a definite diagnostic point but is often extremely suggestive and may help in reaching a definite diagnosis, as thyroid surgery is not particularly satisfactory in psychoneurotic patients. The evaluation of results in hyperthyroidism, involving as it does individuals of a high degree of nervous organization, is an extremely difficult thing. The vast majority of results that one sees in the literature have been based, unfortunately, on letter reports. Of course in many instances that is all that one can get; but the personal return visit gives one the only accurate idea of what has happened in these cases. In looking over the reports of some cases recently, I was interested to find that a fairly large percentage showed a gradual improvement continuing over a period of time. In about 200 patients, 74 per cent were satisfactory at six months; by one year there were 80 per cent; and at two and three years, this figure had increased to 82 and 89 per cent, the term "satisfactory" being used only for patients with a normal metabolic rate and pulse and a complete return to economic activity. Individuals of age, of long duration of symptoms, with definite cardiac involvement, congestive heart failure, or whatever condition happens to present itself, in my opinion certainly require the graded operations to give them the greatest possible safety. The whole question of malignancy of the thyroid comes into the discussion of tumors of aberrant thyroids. Malignancy of the thyroid is, of course, extremely difficult to diagnose, even microscopically, as there is a large group of borderline cases in which pathologists of considerable experience will not agree on the diagnosis. The removal of adenomas of the thyroid before they have undergone malignant transformation has saved many individuals

SUPRAPUBIC PROSTATECTOMY WITH CLOSURE OF THE BLADDER *

ALEXANDER HAMILTON PEACOCK, M.D.
SEATTLE

[Editorial Note.—This paper, together with the paper of Dr. Edwin Davis and the discussion, concludes the symposium on prostatectomy. The papers of Drs. Lowsley and Kirwin and Dr. T. M. Davis were published last week.]

The primary object of prostatectomy in benign hypertrophy is to remove the obstructing adenomatous gland and to reestablish free urethral drainage with the least shock and the lowest mortality.

Before these operations are started a complete study of the patient with days or weeks of preparation is necessary with functional tests, urographic studies, the cardiac estimations, and getting the gastro-intestinal tract into good functional condition. This phase of prostatectomy, its preparation, is the foundation for the tremendously lower mortality over that of twenty-five years ago.

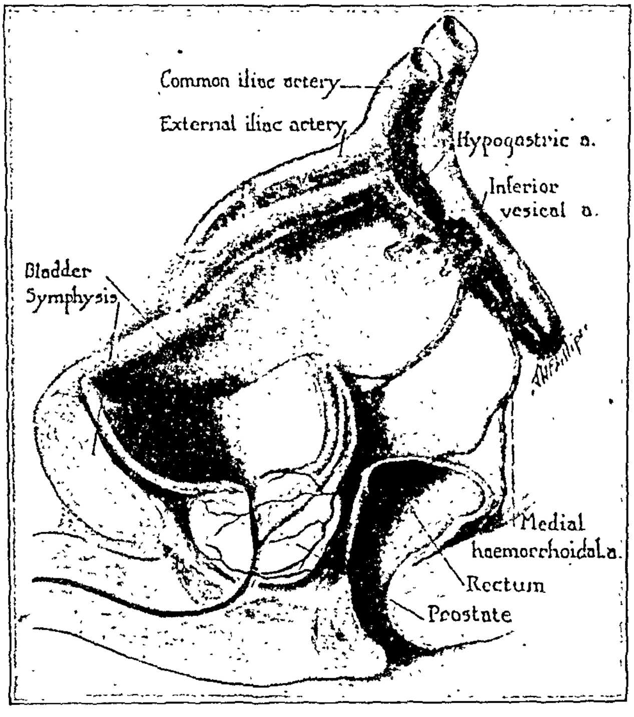

Fig. 1.—Sagittal section of the prostate gland, showing its chief blood supply.

And with each year have come refinements in surgical technic which have been instrumental in producing better functional results, reducing complications, making convalescence more comfortable and operations safer. In the past five years two advances have been made in suprapubic surgery of the prostate; namely, hemostasis of the prostatic cavity by suture, and closure of the urinary bladder. The surgeons who have made these contributions are Thomson-Walker, Deaver, Lower, Judd and Harris.

It is my object in this paper to show that this operation of suture and closure is not unusually difficult, that special instruments are not necessary, and that the technic is surgically correct. The most gratifying result of suturing of the capsule is the immediate control of bleeding. The chief blood supply of the prostate is furnished by the inferior vesicle and the medial branch of the hemorrhoidal arteries. These vessels enter the prostate laterally near the base of the trigon and below the ureteral orifices. Once in the capsule they curve around the prostate and become almost submucous. This accounts for hemorrhages that not infrequently accompany prostatic hypertrophy.

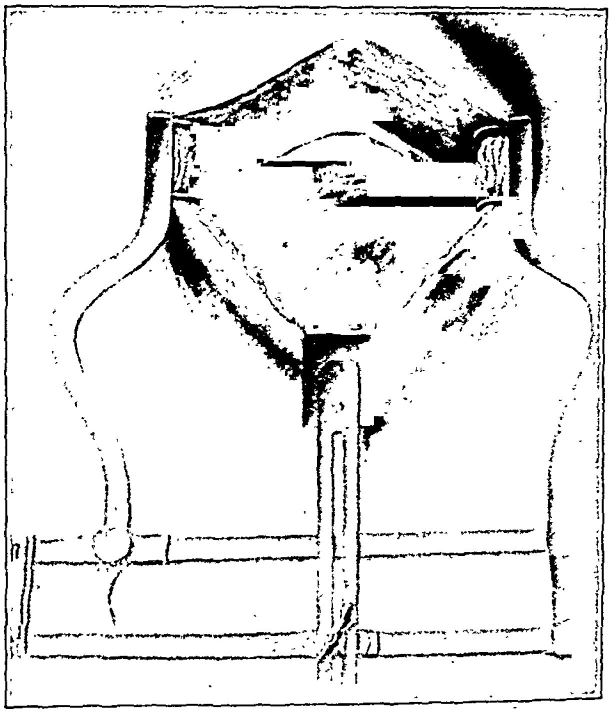

Fig. 9.—Peacock self retaining bladder retractor in position.

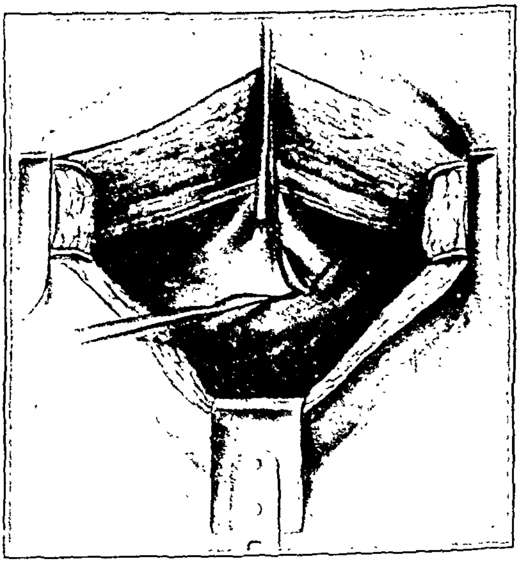

Fig. 10.—The prostate held with a tenaculum and the mucous membrane incised. A catheter marks the internal urethral orifice.

In order to close the bladder, two conditions must be obtained: first, complete hemostasis and, second, unobstructed urethral drainage. How have these conditions been brought about?

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* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

* Because of lack of space, this article is abbreviated here by the omission of several illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

capsule to the urethra. This part of the operation is not always practical, as the distal portion of the urethra retracts well forward under the pubic arch. The major portion of the prostatic capsule, however, can be tacked down to its new floor and early epithelization of the new urethra is accomplished. Now two transverse sutures are placed anteriorly through the capsule and a catheter is slipped through the urethra. A suture is run through the eye of the catheter and brought up through the abdominal wound. The bladder is now sutured and the incision of the abdominal wall is closed without drainage. Harris depends on Young's boomerang needle and holder to place his prostatic sutures. He also uses a retractor, the blades of which are equipped with electric lights. He reported excellent results in a series of 118 cases at the Pan Pacific Surgical Conference in Honolulu, T. H., in August, 1929.

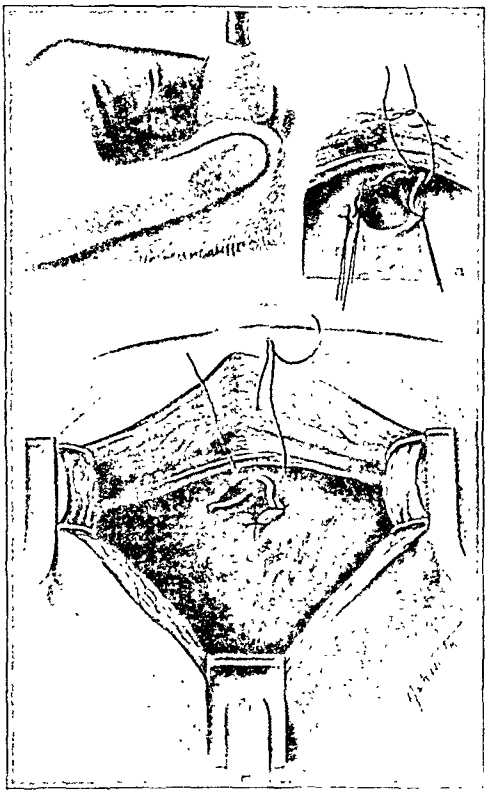

Fig. 14.—Sutures in prostatic capsule reconstructing internal urethral orifice; metal sound in urethra as a guide.

5. All will agree that no operation can be standardized. Wide variations in anatomy, pathology and the condition of the individual tissues call on the ingenuity, experience and judgment of the surgeon. Good exposure is possible in one operating field and very poor in the next. So, in treating the capsule after prostatectomy, different methods of suturing will be necessary from time to time. I have used the Harris technic with some modification in fifty patients, none of whom experienced secondary bleeding.

It has been found that illuminated retractors are not essential to good vision of the prostatic bed. Spinal anesthesia produces a degree of relaxation of the abdominal muscles impossible with any other type of anesthesia. I have modified the self retaining Balfour abdominal retractor by putting on 4 inch L shaped wire blades, which allows the blades to slip under the pubic arch and separate widely the walls of the bladder. It gives a most excellent exposure of the entire bladder. The Young boomerang needle and holder seems almost indispensable in some cases, while in many others an ordinary long needle holder and short curved needle perform just as well or better.

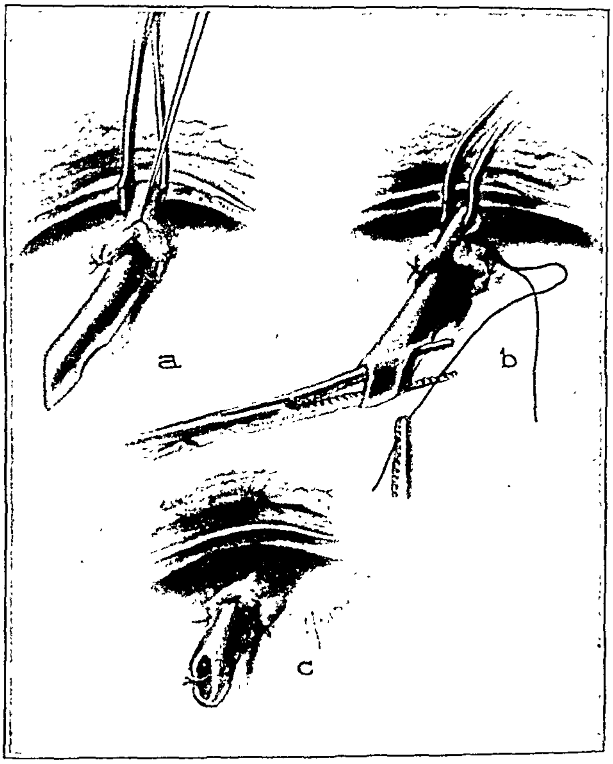

Fig. 15.—Securing the vesical end of an indwelling whistle tip catheter: *a*, one of the prostatic capsule sutures is used for an anchor; *b*, pulling the suture through the eye; *c*, suture tied.

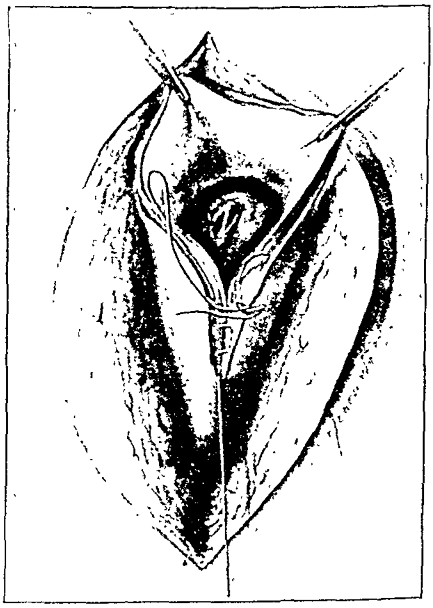

Fig. 16.—Closing the bladder with two layers of Lembert suture.

A number 26 or 28 French whistle tipped catheter gives the best drainage. To anchor it one of the prostatic sutures is used, the ends being passed through the eye of the catheter. As these are of plain catgut, the catheter can be pulled out after three or four days and of failure in 100 consecutive cases. These figures, however, do not accurately represent the results obtained by the sacral block method, since in each of these series the anesthesia consisted merely of a single injection through the sacral hiatus (caudal anesthesia), using a small volume of a concentrated solution (20 cc. of 3 per cent solution of procaine hydrochloride). Scholl's[5] paper, published in 1921, reported 10 failures in 150 cystoscopic manipulations, and included the statement that "most writers report a fairly high percentage of failure." Bransford Lewis, in discussing Scholl's paper, estimated his own failures at 15 per cent. In their original publication on the use of caudal anesthesia, in 1916, Lewis and Bartels[6] reported 13 prostatectomies with 3 failures and 68 cystoscopic manipulations with 22 failures. Lynch[7] (1918) reported 80 rectal cases with 16 failures, and Brenner[8] 12 failures out of 120, most of which were rectal cases. The latter author included the statement that "all observers report some percentage of failure." In keeping with these opinions is the statement of Labat,[9] with respect to the simple caudal injection, that, although the percentage of failure may be reduced, "it is obvious that there are failures which are unavoidable and uncontrollable, to which no remedy will ever be brought." Labat, however, makes a sharp distinction between caudal anesthesia and sacral block and states that the latter procedure "never fails to produce the desired result."

Of interest by way of illustrating the discrepancies in the opinion on this subject are the statements by Babcock[10] and by Harris[11] in consecutive chapters of the same volume of Oxford surgery. Estimating the efficiency of "high sacral anesthesia" at only 45 per cent, Babcock adds that "it is evident that it [sacral anesthesia] has such limitations that only very devoted enthusiasts will have the patience to continue its use," while Harris considers that "blocking of the sacral plexus by intrasacral injection is one of the most satisfactory procedures in the field of local anesthesia." They cannot both be right. It is likely, however, that these contradictory opinions may be partially explained on a terminology basis.

It may be judged from the foregoing that the general impression concerning the unreliability of the sacral method may be largely due to the published results following the use of the simple caudal injection, rather than the complete sacral block. Lundy's[12] report (1927), including 318 cases of suprapubic prostatectomy, in which the sacral block method (together with infiltration of the anterior abdominal wall) was employed, shows the excellent results which may be obtained by this method. In this series, 96.5 per cent were successful, in 1.7 per cent supplementary general anesthesia was necessary, while in an additional 1.7 per cent Lundy considers that general anesthesia should have been used. Lowsley[13] has expressed the opinion that the sacral block method gives perfect anesthesia for perineal prostatectomy in 95 per cent of cases. Meeker and Scholl,[14] in 1924, reported a series of 1,817 cases of sacral block anesthesia with 5.33 per cent failure. Of these, 270 were for prostatectomy, with 5.92 per cent failure. The report of Widenhorn,[15] published in 1929, includes 115 cases of prostatectomy, with six anesthesia failures.

PERSONAL EXPERIENCE WITH SACRAL BLOCK ANESTHESIA

My own former impression relative to the efficiency of the sacral block method may be best expressed by the following quotation from a paper I[16] read in 1924:

> There occurs a certain small but constant percentage of failure to obtain complete anesthesia. This percentage decreases as technic improves, yet this fact constitutes probably the most serious objection to sacral anesthesia. There are several factors tending toward poor or indifferent anesthesia, which may be eliminated by careful technic. Certain cases of failure are due to the fact that the operator has not succeeded in introducing the needle through the hiatus and into the lumen of the sacral canal. It is even possible to make the mistake of giving the injection into the subcutaneous tissues dorsal to the sacrum.

This paper included a series of thirty consecutive cases of perineal prostatectomy with seven anesthesia failures, or 23 per cent. At that time a certain percentage of failure was regarded as inevitable, even with the complete block method. In addition to faulty technic, various explanations were offered by different observers. These included (1) anatomic variations, preventing the introduction of the needles; (2) physiologic variations, such as an "immunity" to procaine hydrochloride; (3) decreased permeability of the neural sheaths; (4) increased capacity of the bony canal of the sacrum; (5) failure to use a sufficiently concentrated solution, and (6) an increased amount of fibrous and fatty tissue in the sacral canal, preventing intimate contact between the procaine hydrochloride and the nerve trunks. The real and only reason for these failures, however, is failure to place the needles accurately and unquestionably in the lumen of the canal and of the foramina. This statement is borne out by the figures cited hereafter.

The series here presented consists of 378 consecutive cases of perineal prostatectomy, similarly handled. Each patient, without exception, received sacral block anesthesia, consisting of a caudal injection, and injection of the first, second and third posterior sacral foramina, as already outlined. As indicated in table 1, the percentage of anesthesia failure, which was very high early in the series (20 per cent in the first twenty-five cases), has shown a gradual decrease during the first hundred cases, and has now come to be nil. The total number of failures in the first 100 cases was 12, of which 9 occurred during the first 50. Since the first 100 cases there has been one failure only (case 149), and, following this, there have been 229 consecutive cases without a failure, in a series which is as yet uninterrupted.

As here employed, the term "sacral anesthesia failure" means that supplementary inhalation anesthesia was necessary. Every case in which nitrous oxide or ether was employed has been counted, whether used or in surgery involving the dome of the bladder, but it does not apply with sacral block anesthesia in perineal prostatectomy. This series of 378 cases has included the usual percentage of exceedingly nervous and excitable, non-English-speaking Russian Jews. Every one doing surgical work is familiar with this type and knows how difficult it is to gain the confidence of one of these individuals. Since none of these were excluded from the series, and since each of these neurotic individuals went through exactly the same routine as the others, with only one-fourth grain (16 mg.) of morphine, and without general anesthesia, it is clear that nervousness or mental instability does not constitute an objection to the sacral block method.

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[5] Scholl, A. J.: Sacral Anesthesia in Urology, J. Urol. **6**: 149 (Aug.) 1921.

[6] Lewis, Bransford; and Bartels, Leo: Caudal Anesthesia in Genito-Urinary Surgery, Surg. Gynec. Obst. **22**: 262 (March) 1916.

[7] Lynch, J. M.: Sacral Anesthesia, Am. J. Surg. **32**: 57 (April) 1918.

[8] Brenner, E. C.: Sacral Anesthesia, Ann. Surg. **79**: 118 (Jan.) 1924.

[9] Labat, G.: Brit. J. Anesth. **3**: 5 (July) 1925.

[10] Babcock, W. W.: Chapter on Spinal Anesthesia, Oxford Loose Leaf Surgery, New York, Oxford University Press **1**: 167, 1920.

[11] Harris, M. L.: Chapter on Local Anesthesia, Oxford Loose Leaf Surgery, New York, Oxford University Press **1**: 136, 1920.

[12] Lundy, J. S.: Regional Anesthesia for Operations in the Urinary Bladder, J. Urol. **17**: 525 (June) 1927.

[13] Lowsley, O. S.: Embryology, Anatomy and Surgery of the Prostate Gland, Am. J. Surg. **8**: 526 (March) 1930.

[14] Meeker, W. R., and Scholl, A. J.: Sacral Nerve Block Anesthesia, Ann. Surg. **80**: 739 (Nov.) 1924.

[15] Widenhorn, H.: Die Sakkralanästhesie in der urologischen chirurgie, Deutsche Ztschr. f. Chir. **216**: 163, 1929.

[16] Davis, Edwin: Perineal Prostatectomy, with Particular Reference to Sacral Anesthesia and to Hemostasis, J. A. M. A. **83**: 1988-1993 (Dec. 20) 1924.

I know of no contraindications to the use of sacral block anesthesia in perineal prostatectomy.

SACRAL BLOCK VERSUS SPINAL ANESTHESIA

I am not in a position to be able to express an opinion relative to these two methods, based on personal experience with both. The general impression is that spinal anesthesia carries with it a certain hazard of its own, and that a certain percentage of reaction is inevitable, a few of these being serious, and an occasional one fatal. On the other hand, Chute[17] has reported a total series of 840 prostatectomies, with "no immediate fatalities and no remote ones that could be attributed to spinal anesthesia." In discussing this paper, Lundy, who has had an unusually extensive experience with both methods, states: "It seems to me that sacral block is safer than spinal anesthesia." Regardless of how great the inherent hazard in spinal anesthesia may be, the figures reported by Dr. Chute clearly demonstrate that the percentage of mishap may be reduced to a very small minimum in proper hands.

Disregarding the hazard question, however, I believe that the opinion is permissible that the sacral block method (in prostatectomy) is preferable to the spinal method, on an efficiency basis alone. Analyzing the last 512 consecutive cases, Chute has reported that there were forty-three cases, or slightly more than 8 per cent, in which "a little supplementary anesthesia was employed." Barney and Shedden,[18] analyzing a series of 250 prostatectomies in the Massachusetts General Hospital from the anesthesia point of view state: "In any considerable group of spinal anesthesias, an incidence of nearly 10 per cent of spinal reactions is to be expected, of which some are fatal."

My own opinion, based on the general impression relative to spinal anesthesia in average hands and on figures here submitted, is that the sacral block method (in prostatectomy) is more safe and less subject to failure. Moreover, postoperative headache, occurring as a sequela of sacral block anesthesia, is an unheard of complication.

MORTALITY RATE IN PROSTATECTOMY

Since this paper has to do primarily with sacral block anesthesia, a discussion of operative technic and late functional results would here be out of place. It is essential, however, to include table 2, showing the mortality rate, because any given procedure may be justified only by the results obtained. As indicated, there has been a total of 9 deaths out of 378 consecutive cases of perineal prostatectomy, a mortality rate of 2.38 per cent. The largest number of consecutive cases included in this series without a death was 121. None of these deaths have been in any way associated with the anesthesia, since all occurred at intervals of from six days to several weeks after the operation, from such causes as late general sepsis, three cases; renal insufficiency, three cases; pneumonia, one case; pulmonary embolus, one case, and acute cardiac decompensation, one case. Of the three deaths due to general sepsis, two were considered to have been due primarily to lowered resistance secondary to profuse delayed hemorrhage, coming on as late as two weeks after the operation. In the entire series, however, there has been no death resulting directly from hemorrhage, either immediate or late.

This mortality rate represents a faithful and accurate recording of all deaths, due directly or indirectly to the prostatectomy, or occurring from any cause whatever, during the patient's stay in the hospital, with one exception as outlined later. Among the nine deaths there has been included one which occurred on the thirty-ninth postoperative day, in sepsis, associated with the formation of an abscess in the calf of the right leg. One additional death, which occurred on the fifty-first postoperative day (from renal insufficiency), I have considered could be honestly and properly excluded from the series, since the patient was up and fully dressed during the third postoperative week and had been given permission to return home. Although the incision was entirely healed and the urine passing normally through the urethra, the patient voluntarily chose to remain in the hospital awaiting more complete convalescence. Obviously this patient, able to walk, fully dressed, in the hospital corridor, had survived the prostatectomy.

Table 2.—*Perineal Prostatectomy Under Sacral Anesthesia: Immediate Results*

Total consecutive cases	378
Average age	70
Above 80	25
Deaths	9
Mortality rate (per cent)	2.38
Total consecutive cases with no deaths	121
Sacral anesthesia (consecutive cases without failure)	229
Rectal injury	2
Postoperative "shock"	0
Delayed hemorrhage (several days)	10
Epididymitis	42

FACTORS TENDING TO LOWER THE MORTALITY RATE OF PROSTATECTOMY

Chief among the factors tending to minimize the mortality rate in prostatectomy are (1) preliminary drainage, (2) the perineal route, (3) excessive care in hemostasis and (4) sacral block anesthesia.

1. Unquestionably, the most important of these factors is adequate and prolonged preliminary drainage. This item has been attended to with scrupulous care and rigid insistence. The rule requiring a minimum ten day drainage in all cases, regardless of apparent good general condition has not been deviated from in any instance. It was also insisted on that a ten day period of normal temperature precede every operation. In many cases the drainage period extended over several weeks and, in the occasional case, over several months. The suprapubic drainage route was employed in about 25 per cent of cases, in which the retained urethral catheter proved to be intolerable or inefficient, for one reason or another.

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[17] Chute, A. L.: The Use of Spinal Anesthesia in Urology, J. A. M. A. **96**: 88 (Jan. 10) 1931.

[18] Barney, J. D., and Shedden, W. M.: A Study of Anesthesia in Prostatectomy, S. Clin. North America **2**: 1093-1104 (Aug.) 1922.

the delicate readjustment of the effects of that obstruction, which have to be most carefully dealt with. If any one thing has brought prostatectomy to its present success, it has been the understanding of preoperative drainage. If anything will carry it further, I think that the greatest factor will be competent postoperative drainage, and for that reason I fear his procedure.

Dr. R. M. Nesbit, Ann Arbor, Mich.: Two and a half years ago, in working with Dr. Hugh Cabot, I went over the records of 450 patients who had been operated on for prostatic obstruction, with drainage, and found that 17 per cent had epididymitis. At that time my associates and I started performing vasectomy on all patients as a preoperative measure and since then these patients, over 100, have shown an incidence of less than 1 per cent of epididymitis. In the one instance that has occurred there were chills and fever following operation and immediately preceding the epididymitis, and it was felt that probably the infection was blood borne.

Dr. Hermon C. Bumpus, Jr., Rochester, Minn.: I shall discuss the paper of Dr. T. M. Davis because I just visited his clinic and saw him operate on four patients, and a number who had been operated on previously were kind enough to demonstrate themselves. Dr. Davis has in no way exaggerated his results or the ease of the procedure. When, in the eighteen eighties, surgery of the prostate was first attempted, partial prostatectomy was the rule. It soon became apparent that, as then practiced through a suprapubic incision, partial removal did not completely relieve obstruction. Therefore, complete removal of the gland was undertaken and success followed, for it is axiomatic that when residual urine is completely removed results are good. The modern punch operation, as practiced by Dr. Davis, by removing all obstruction does completely relieve residual urine and hence is likewise successful. If obstruction is relieved, all indications for removing the gland in toto disappear. An elderly man will never acquiesce to the loss of his prostate when he learns that his neighbor has been relieved of all symptoms of obstruction by this simple procedure.

Dr. O. S. Lowsley, New York: I have been using regional anesthesia since 1921, and good anesthesia is always obtainable if the anesthetist gives a sufficient amount of the agent used. It has been worked out that procaine hydrochloride is destroyed in the liver, and one can use a large amount without any danger if it is given slowly. I consider the method an excellent one. With regard to Dr. T. M. Davis's paper I wish to register a protest against the use of this instrument by every one. A protest also is in order against his using it in every case. The laryngologists have given up using the same type of operation for tonsils. Why? Because they have had to go back when they have taken out only a portion and take out the whole tonsil later. That is why Dr. Davis and others will have to give up this instrument. It cannot take out the whole prostate. One subjects old men to procedure that is a great strain for two or three hours and they go home. They would probably rest at home as well as in a hospital in the average case, but I think that there will be a group of recurrences on this that will make them give it up, as Dr. Max Stern, who devised this instrument that Dr. Davis uses, did in adenomatous hypertrophy of the prostate. I wish to commend my New York confrères who take a more conservative view. Dr. Kirwin, Dr. Collings and Dr. Stern are all convinced that this type of prostate should not be operated on in the manner described by Dr. Davis. In connection with my demonstration of a method of operative intervention in suprapubic prostatectomy, I attempted to demonstrate that the intra-urethral method of removing the prostate is to be avoided, owing to the danger of tearing into the plexus of Santorini. In conclusion, I again object to patchwork at the vesical orifice. Whether the sphincter is destroyed or not, the vesical orifice will resume its function. If sutures are put in, they cause scar tissue and delay the resumption of function of the internal vesical sphincter.

Dr. J. H. Morrissey, New York: This past week, I had an opportunity of seeing the work and immediate results obtained by Dr. Davis. The general condition of some eight patients, based on the criteria by which one judges these patients, was certainly an improvement on the results which I know I should have had in the same interval. My main objection to any punch procedure in the past has been based on the assumption that the element of drainage to combat existing or postoperative infection is disregarded. I can now see that this fear is groundless, as the procedure itself provides better drainage than the patient has had previously, and in the presence of developing infection it also looks after this complication satisfactorily. I think that there are limitations to Dr. Davis's method. The loops are weak; the electrical knowledge and the patience required are something that the average genito-urinary surgeon does not possess. The fact that Dr. Davis had four instruments on the table indicates to my mind that they must break, and he was prepared for such an emergency. Of course, the perfect radio knife is that which cuts and cauterizes, checking bleeding points at the same time. That will come eventually. We have all seen a great advance and development in the various trends in electrical instruments used in urology. We must be careful not to disregard or belittle the work of a new, honest and earnest investigator who is trying to give a choice in the method of removal of obstructive prostates, a choice as to whether the prostate shall be resected, as he calls it, punched out, removed or, as happens in too many cases, yanked out in two or three seconds.

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Dr. George R. Livermore, Memphis, Tenn.: I have always maintained that the punch operation is indicated only in patients with obstruction of the median bar. In patients who have a hypertrophic prostate and whose condition will not permit, or who will not submit to operation, I have been endeavoring to reduce the obstruction by means of Collings' electrotome, and have had some success. I feel that this pro-

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ACCESSORY SINUS INFECTION IN SUSPECTED PULMONARY TUBERCULOSIS *

JOHN D. OSMOND, M.D.
CLEVELAND

In making roentgenologic examinations of many chests, one finds evidence of chronic infection that is nontuberculous in origin. Most of the patients who are referred for roentgen examination of the lungs are sent for one purpose; namely, to determine whether or not pulmonary tuberculosis is present and to what extent. Formerly, the roentgenologist was content with his diagnosis when he could rule out a pulmonary tuberculous infection. Now, in order to be of greater service to the referring physician and to the patient, he must try to find the origin of the chronic infection that is causing the lung symptoms. The lung changes may represent chronic bronchitis, bronchial asthma, or bronchiectasis. The origin may be in the upper respiratory tract, especially the accessory sinuses.

During the past four years my associate Dr. James H. West and I have been impressed by the number of chest patients whose clinical symptoms suggested early tuberculosis but whose chest roentgenograms revealed increased connective tissue branching out from each hilus region with no parenchymal involvement. The linear markings were broad and short and there was thickening of the bronchi at the bases. Most of the patients were adults. Out of 1,377 chest patients examined, one or more roentgenograms of the sinuses were made in 124 cases. Of these, seventy-six had definite sinus complications. Seventeen had signs of tuberculosis and sinusitis. All the sinus examinations were made on our own responsibility; only recently are requests being made to examine the sinuses in addition to the stereoscopic chest studies. In addition to this list of chest cases, about an equal number of similar patients were examined at St. Vincent's Charity Hospital. At first, no sinus examination was made until after the chest roentgenograms were studied. If the patient looked well nourished and had a chronic cough, we made a single roentgenogram of the sinuses in the Waters position; later it became our custom to take a short history at the time of the fluoroscopic examination. If the patient gave a history of frequent head colds and increased expectoration, a sinus examination was clearly indicated. The number of chest patients for whom we made one or more sinus roentgenograms steadily increased each year during the series from 1927 to 1930 inclusive. In 1927 we selected only nine patients; in 1930 there were fifty-four. Stereoscopic chest studies were made in all cases. A surprising number of sinus complications were found. A sinus examination was not made in any case giving gross fluoroscopic evidence of tuberculosis.

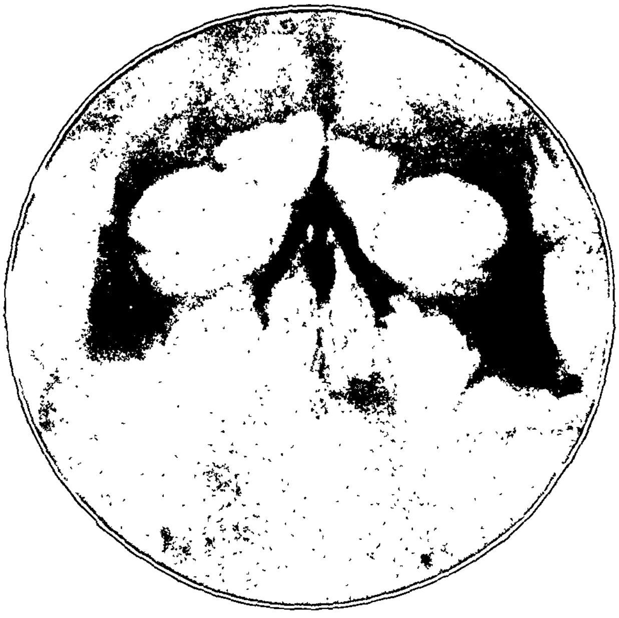

Fig. 1 (case 3).—Active sinusitis with pus in each antrum, more in the right than in the left.

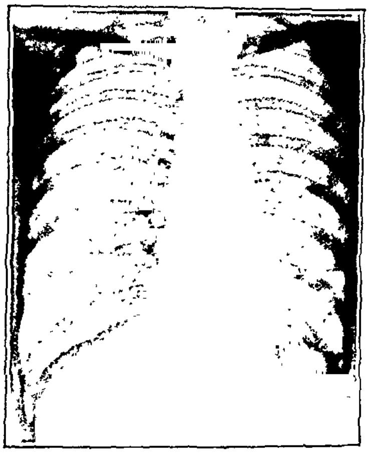

Fig. 2 (case 3).—Lung changes of nontuberculous origin. Patient's symptoms disappeared with treatment of her sinusitis. The case had been diagnosed clinically as an active pulmonary tuberculosis.

Fluoroscopic examination alone, without stereoscopic roentgenograms, is not reliable for detection of early pulmonary tuberculosis. The early lung changes are not visible on the fluoroscopic screen and much valuable time may be lost in beginning the proper treatment of early tuberculosis.

Since this paper was begun, four months ago, four helpful references have been found in the literature regarding the relation of sinus infection to respiratory disease. Knight,[1] Schwartz[2] and Mullin[3] referred mostly to the adult, and Wasson[4] has written several excellent articles regarding the infant chest and the development of bronchosinusitis in children, and they all clearly show that one may expect to find lung changes in the adult which had their origin years before in sinus infection and reinfection, or some other infection of the upper respiratory tract.

A patient may be unaware of the presence of a sinusitis. Pain is not necessarily a symptom. The only subjective symptom may be a moderate postnasal dropping of mucus and a tinge of yellow in the nasal secretions. When such symptoms obtain for more than a month, a sinus examination will reveal chronic sinusitis in a high percentage of cases.

I shall consider briefly the anatomy of the lung and the use of a few terms. The use of the word hilus as used in this paper refers to the fan-shaped area including the root of the lung and extending peripherally about an inch beyond the bifurcation of the bronchi. The lymph nodes that most frequently concern the roentgenologist are the bronchopulmonary glands

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* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Knight, R. W.: The Relation of Sinus Infections to Respiratory Disease, Canad. M. A. J. **18**: 54 (Jan.) 1928.

[2] Schwartz, Morris: Sinusitis in Relation to Acute Bronchitis, M. J. & Rec. **131**: 310 (March 19) 1930.

[3] Mullin, W. V.: Relation of Paranasal Sinus Infection to Disease of Lower Respiratory Tract, J. A. M. A. **87**: 739 (Sept. 4) 1926.

[4] Wasson, W. W.: Bronchosinusitis Disease and Incipient Pulmonary Tuberculosis, Illinois M. J. **58**: 62 (July) 1930.

Case 2.—In August, 1929, we made a roentgenographic study of the sinuses of a man, aged 29, who for years had had a recurring nasal discharge and chronic cough. He had the idea that he could throw it off eventually and had not sought medical aid. He gave no history of a previous pneumonia. His roentgenograms showed a general cloudiness of all the sinuses and evidence of a chronic sinusitis. Later, a chest study was made which showed a chronic bronchitis and bronchiectasis and no tuberculosis. Antrotomy was done. Lavage was done for six weeks. Sinus and chest symptoms improved.

Case 3.—Early in January, 1930, a man came for advice concerning a young woman who was a school teacher in a neighboring city and who had come to Cleveland for the Christmas vacation, was taken ill, and was at present in a small hospital. Her case had been diagnosed as pulmonary tuberculosis by two physicians in the hospital and also by a city physician. She gave a history of beginning to cough in November, and soon after reaching Cleveland had a temperature of 104 F. Three days later she had entered the hospital and two weeks later was told by her physician that she had tuberculosis. My advice to the friend was that the patient would surely receive good care in the hospital, but if anything radical was proposed, a consultation could be requested. January 25, after being told that she must spend three months in the City Hospital and then enter the tuberculosis sanatorium, she insisted on a consultation. The report of her roentgen examination is as follows: "Stereoscopic examination of the chest shows a generalized thickening of the bronchial branches in the right lung and a slight thickenig of the bronchial branches extending up from the left hilus. There is also a slight haziness along the vertebral bronchial branches extending up into the right apex. In our opinion, these lung changes are nontuberculous in origin. Examination of the sinuses shows a marked haziness of each antrum and a slight haziness of each frontal and all of the ethmoid cells, indicating an active sinusitis with pus in each antrum. The sphenoid is comparatively clear. In our opinion, the lung changes are due to the sinus infection." She was referred to a rhinologist, who washed out each antrum. She gained 10 pounds (4.5 Kg.) in two weeks. Examination was made February 6 with iodized oil. A Caldwell-Luc operation was performed, February 10. The patient has had three separate chest examinations by different roentgenologists in Cleveland since the antrum operation, in order to satisfy every one concerned, and to be allowed to continue teaching school. All three roentgen reports have been negative for pulmonary tuberculosis.

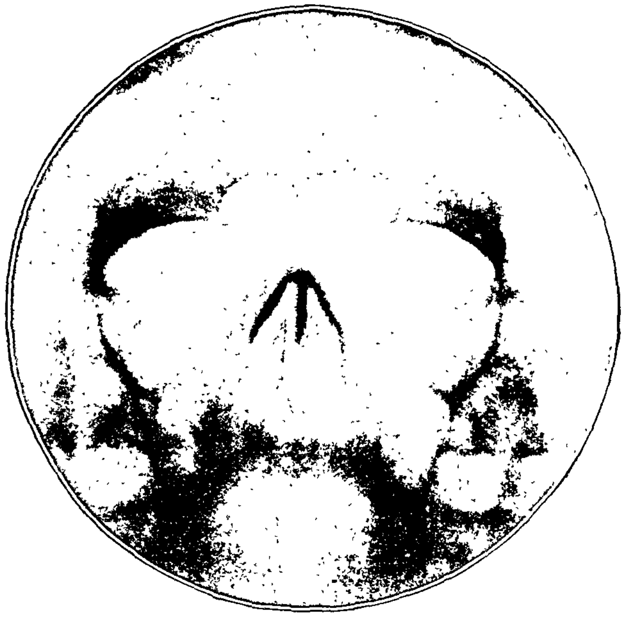

Fig. 5 (case 5).—Chronic hyperplastic thickening of membrane of each antrum with polyp formation; relieved by bilateral Caldwell-Luc operation.

Case 4.—In February, 1930, we examined the chest of a boy, aged 14, who had a chronic cough and expectorated considerably, and whose sputum had been repeatedly examined for tubercle bacilli, with negative reports. He had had repeated colds for five years. His sinuses had never been examined. There was no history of pneumonia. The report of our roentgen study was as follows: "Stereoscopic examination of the chest shows a general thickening of the descending bronchial branches in each lower lobe and a lesser thickening of the ascending bronchial branches from each hilus, indicating some nontuberculous infection and a bronchiectasis in the lower lobes. There is no evidence of tuberculosis in either lung. The heart is crowded to the left side of the median line by a depressed sternum. The apexes and costophrenic angles are clear. Roentgenograms of the sinuses show marked evidence of chronic sinusitis of each antrum with hyperplastic thickening of the membrane. There is also some haziness of the ethmoid cells. The frontal sinuses and the sphenoids are clear. In our opinion, the chronic sinusitis is the cause of the bronchitis and bronchiectasis, and in our opinion the lung condition will rapidly improve with treatment of the sinuses. . . . Injection of the right antrum with iodized oil shows a very thick and irregular membrane, indicating the presence of probable polyps in the antrum. Injection of the left antrum shows that the membrane is not quite as thick as in the right, but it is irregular also and suggests the presence of polyps." A bilateral Caldwell-Luc operation was performed February 11. The cough disappeared; the patient rapidly gained weight.

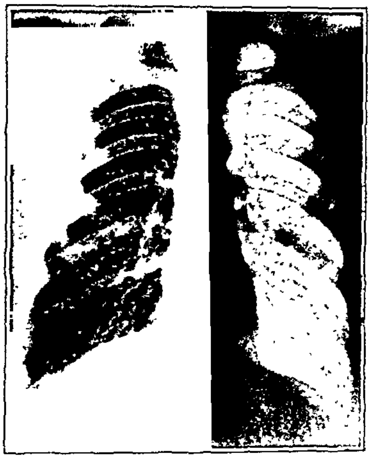

Fig. 6 (case 5).—Nontuberculous infection. Patient had been treated for more than two years in a tuberculosis sanatorium. No evidence of any pulmonary tuberculosis at this examination.

Case 5.—This report is too interesting to leave out of the series examined in the years 1926 to 1930 inclusive, although this patient was examined in March, 1931. He had recently been referred to Dr. E. P. Edwards, who could find no clinical signs of pulmonary tuberculosis. His diagnosis was an infection of the upper respiratory tract which was responsible for the chest symptoms, and he referred the patient to us for a roentgen examination of the chest and sinuses. The patient, aged 35, was discharged eleven months ago from a tuberculosis sanatorium where he had spent the greater part of two years. He has colds continually; also frequent headaches, especially above the eyes. There was much nasal discharge and expectoration. The tonsils were removed three and a half years ago. The report of the roentgenographic study is as follows: "Fluoroscopic examination of the chest shows no evidence of fluid in either costophrenic angle and there is normal excursion of the diaphragm on each side. Stereoscopic roentgenograms show a generalized fibrosis branching out from each hilus and of the ascending and descending trunk shadows in each lung. There are no parenchymal changes, and in our opinion the fibrosis is due to a chronic nontuberculous infection. Roentgen examination of the sinuses shows a marked increased density of each antrum, evidently due to thickening of the membrane from a chronic sinusitis. Injection of iodized oil in each antrum indicates polyp formation." A rhinologist then did a bilateral Caldwell-Luc operation, and polyps were found in each antrum.

These histories are typical of a sinus chest infection. The clinical symptoms may closely simulate active pulmonary tuberculosis. Râles and elevation of tem-

Babcock,[8] Labat,[9] Pitkin[10] and others have served to establish spinal anesthesia firmly as an anesthetic agent in the armamentarium of the surgeon.

That the newer anesthetics and the methods of their administration and control have less disagreeable pharmacologic and physiologic manifestations than cocaine and its nearer relatives may be admitted. However, surprisingly little is to be found in the literature concerning the possible pathologic changes in the spinal cords of human beings or animals that have been subjected to intrathecal injections of the newer spinal anesthetics.

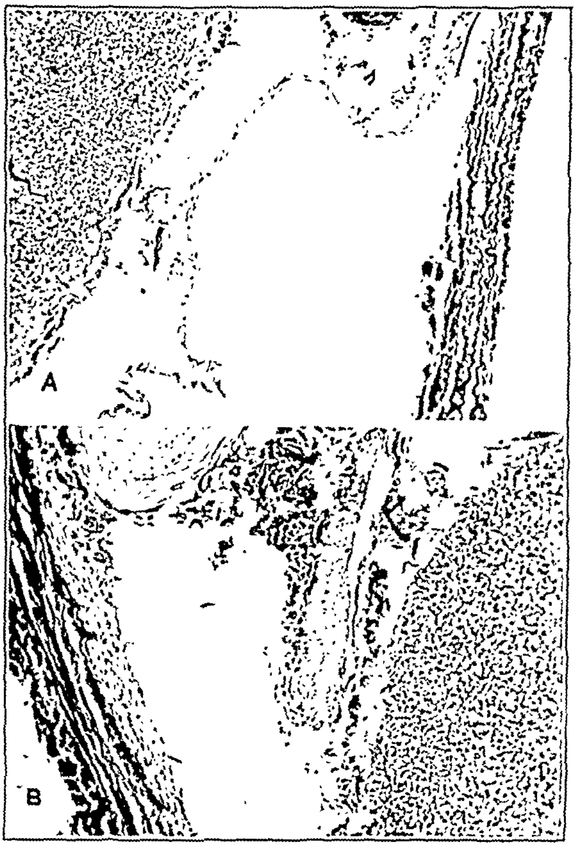

Fig. 1.—*A*, lumbar enlargement of the spinal cord of a dog seven days after injection of spinocaine into the lumbosacral dural sac; a moderate degree of inflammatory reaction is present. *B*, region of the lumbar enlargement thirty days after the injection of spinocaine showing fibrotic scarring on healing of an inflammatory reaction; van Gieson stain. Reduced from a photomicrograph with a magnification of 110 diameters.

Wossidlo[11] injected 5 per cent procaine hydrochloride into the subarachnoid space of dogs and found definite changes in the Nissl substance and the nucleus of the ganglion cells at intervals extending to twenty-four hours after injection. Pitkin[10] has reported no macroscopic or microscopic changes in the spinal cords of dogs that came to autopsy two, four, five and nine days after the injection of 5, 10 and 20 per cent solutions of procaine hydrochloride.

The preparations of spinal anesthetics in most common use among surgeons today, namely, nupercaine and such preparations as spinocaine, gravocaine and scurocaine, which contain procaine as the chief constituent, were selected to form the basis of this study. Dogs, as nearly as possible of the same general size, weight and age, were selected as the experimental animals. Each dog was injected with one ampule, or one full human dose of one of the aforementioned compounds. The animals were then killed by bleeding at intervals of twenty-four hours, seventy-two hours, seven days, thirty days and ninety days after the injection. The cords were removed and preserved in solution of formaldehyde for histologic study. Other animals were injected with a dose comparable to that given a human being as computed on a relative basis according to body weight. These dogs were killed three weeks and five weeks after injection. All the injections were made into the subarachnoid space in the lumbosacral dural sac, with a technic essentially the same in all respects as that used in performing lumbar puncture on the human being. Clear spinal fluid was obtained each time before injection and no anesthetic was used other than a preliminary hypodermic of morphine sulphate. Laminectomies were not performed in any instance. Control animals were used in which lumbar puncture alone was done. In all, thirty-seven animals were studied.

In all the dogs the paralysis and sensory loss were limited to the posterior extremities. Blood pressure tracings were not taken. There were no marked untoward effects noted except in those animals of the first group which received the injection of spinocaine. All of these dogs showed repeated tonic spasms in the fore limbs with hypernea which resembled the convulsions caused by strychnine. These spasms were absent in the animals of the second group which received the smaller dosage of spinocaine, but these too had hypernea.

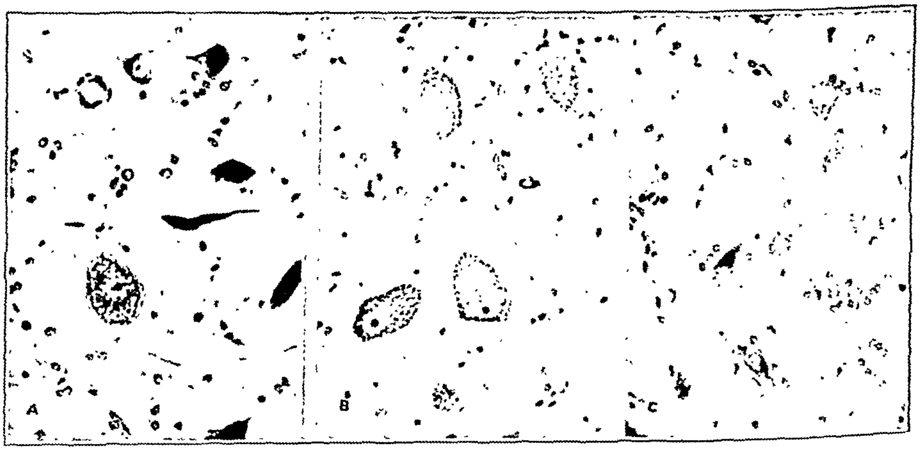

Fig. 2.—*A*, acute swelling in an anterior horn cell from the lumbar enlargement of the cord twenty-four hours after the injection of scurocaine. *B*, moderate swelling, eccentricity of the nucleus, dustlike Nissl substance about the nuclei and agglutination of Nissl substance about the periphery. Region of the lumbar enlargement three weeks after the injection of gravocaine. *C*, pale staining of the anterior horn cells with washed out appearance of the Nissl substance and edema of the nuclei; lumbar region, seven days after the injection of spinocaine. Cresyl violet stain. Reduced from a photomicrograph with a magnification of 325 diameters.

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8. Babcock, W. W.: Spinal Anesthesia, an Experience of Twenty-Four Years, Am. J. Surg. **5**: 571-576 (Dec.) 1928.
9. Labat, G.: Elimination of Dangers of Spinal Anesthesia, Am. J. Surg. **5**: 625-632 (Dec.) 1928.
10. Pitkin, G. P.: Controllable Spinal Anesthesia, Am. J. Surg. **5**: 537-553 (Dec.) 1928.
11. Wossidlo, E.: Experimentelle Untersuchungen über Veranderungen der Nissl'schen Granula bei der Lumbalanästhesie, Arch. f. klin. Chir. **86**: 1017-1053, 1908.

ever, in the cords of those animals killed ninety days after injection we were able to find but few abnormalities in the appearance of the ganglion cells.

After impregnation by the silver stain the axis cylinders showed no abnormalities in the cervical and dorsal regions (fig. 3 *A*). In the lumbar and sacral regions there were swelling and fragmentation of the axons in animals killed after twenty-four and seventy-two hours, seven days and three weeks (fig. 3 *B*).

Specimens of the cords removed twenty and thirty days after injection and stained by the Marchi method revealed the same general picture of degeneration of the fiber tract as shown by Spielmeyer in his experiments with stovaine. The peripheral zones of the cords were affected in all cases to some degree (fig. 4 *A*). In the sacral regions the Marchi bodies were scattered rather diffusely throughout the cord. In the lumbar region the affected fibers were for the most part about the periphery of the cords and were more marked in the zones near the exit of the roots from the cord. In two animals, one with the smaller dosage of nupercaine and one with the larger dosage of spinocaine, an area was noted in the posterior columns in the lumbar region suggestive of ascending root degeneration (fig. 4 *B*). These areas were not seen, however, in the dorsal or cervical regions of the same cords.

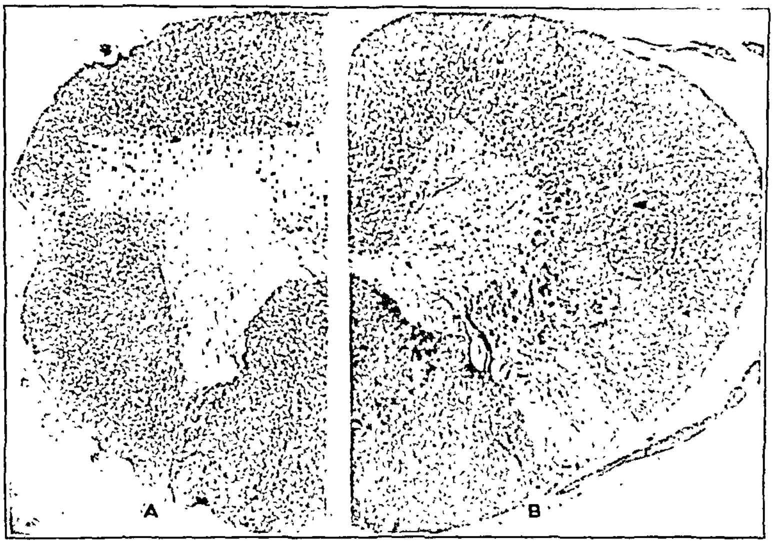

Fig. 5.—*A*, demyelinated zone about the periphery of a cord incubated in 1:100 spinocaine solution in physiologic solution of sodium chloride. *B*, control incubated in physiologic solution of sodium chloride alone, showing no zone of demyelination. Weil stain. Reduced from a photomicrograph with a magnification of 27 diameters.

Since Weil[13] has recently shown that hemolytic toxins are also myelolytic and in view of the myelin changes noted in the Marchi stained sections of these animal cords, it was decided to conduct the following two experiments:

Following the technic used by Weil, pieces of spinal cord were removed from an animal killed by bleeding and subjected to incubation in various dilutions of these spinal anesthetics. Other pieces were incubated in physiologic solution of sodium chloride as controls. Aseptic precautions were used throughout. The dilutions varied from 1 : 10 to 1 : 200 parts of the anesthetic solution in sterile physiologic solution of sodium chloride. The pieces of cord, after eighteen hours' incubation, were fixed in solution of formaldehyde, embedded in celloidin, and stained with Weil's stain. A zone of demyelination was present about the periphery of all the cords subjected to incubation with the anesthetic solutions, while those incubated in the physiologic solution of sodium chloride alone failed to show this (fig. 5).

Experiments were also performed to determine the hemolytic action of the anesthetic solutions used in the animal experiments. Test tubes containing dilutions of the anesthetics in physiologic solution of sodium chloride, from 1 : 10 to 1 : 320, were set up with controls of physiologic solution of sodium chloride alone. To these were added washed corpuscles of human blood. They were then placed in an incubator at 37 C. for one and a half hours after which time hemolysis was found to be complete in all the tubes except the controls. Similar dilutions and controls were allowed to stand at room temperature for eighteen hours. After this time the control tubes were noted to consist of a layer of corpuscles which had settled in the bottom with clear saline solution above them. The tubes with the anesthetic solutions in them were seen to have a smaller layer of corpuscles in the bottom, a variable layer of reddish coloring above this, and clear fluid on top. An equal amount of the clear fluid from the top was decanted off from each of these tubes into another tube and each diluted with an equal amount of distilled water. The clear fluid was also decanted from above the corpuscles of the control tubes and diluted to the same degree. An equal amount of distilled water was placed in a third tube and an equal amount of physiologic solution of sodium chloride was placed in a fourth tube. To each of these tubes was added five drops of 1 per cent nile blue sulphate solution. The tubes containing the distilled water, the physiologic solution of sodium chloride and the decanted solution from the control tubes were all colored a light blue by the diffusing dye. Those tubes which contained equal amounts of clear fluid decanted from above the hemolysis taking place in the bottoms of the tubes containing the anesthetic solutions were all colored green by the dye diffusing through the solution. This was due to the lipoids which were freed in the solution by the lytic action of the anesthetic solutions on the walls of the red cells. These lipoids apparently diffused through the solution faster than the red color of the hemolysis.

SUMMARY

The spinal anesthetic solutions in common use today are hemolytic as well as myelolytic and would seem to act on the myelin of the nerve fibers as they do on the lipoids of the red blood cell membrane causing its dissolution.

After the injection of the spinal anesthetics in most prevalent use today into the spinal dural sacs of dogs, we have observed the following changes:

1. A varying degree of inflammatory reaction in the leptomeninges.
2. Passive changes in the ganglion cells of the gray matter of the cord similar to those seen in retrograde or so-called wallerian degeneration.
3. Swelling and fragmentation of the axis cylinders.
4. Signs of degenerative changes in the fiber tracts of the cord.

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[13] Weil, A.: Die Wirkung von Schlangengiften auf Nervengewebe, Arch. f. exper. Path. u. Pharmakol. 154: 228-238, 1930.

studied clinically by Neff and Haden,[18] and were discussed at a symposium before the New York Academy of Medicine by Stockard,[19] Imboden,[20] Haynes[21] and Farr.[22] Despite the work done to date, it seems safe to say that this condition, especially its clinical picture, is not yet well understood by the profession at large.

Description and Roentgen Appearance.—Duodenal bands represent anatomically the unabsorbed portion of the free edge of the lesser (hepatogastric) omentum and are called variously hepatoduodenal, hepatocolic or cystocolic ligaments, depending on the actual course of the anomalous membranes. They either cross or are attached to the duodenum in its first or second portion. When the first portion alone is involved, various deformities of the cap are produced in the roentgen appearance. This group is not discussed here, the present study dealing exclusively with bands involving the second portion of the duodenum. The latter cause a characteristic roentgen appearance (fig. 1) when the patient is examined in the erect anteroposterior position immediately after the stomach has begun to empty the opaque meal. Under these circumstances the second portion of the duodenum appears pulled out to the right (for a varying distance and at a varying angle) instead of descending parallel to or behind the antrum of the stomach, as in the normal condition. In extreme cases the entire second portion is displaced in this fashion, but in others only the uppermost part and less often some other segment of the descending limb is so involved. In many cases a sharp angle results between the fixed upper and the free lower portion. This arrangement acts as a point of irritation or transient obstruction. Marked stasis, such as is usually described in the literature under the term "duodenal obstruction," is not noted. Retroperistalsis was observed in at least 10 per cent of our cases. Adhesions to the hepatic flexure of the colon were occasionally demonstrable. The most common associated anomaly is a low cecum, which we observed twice as often (36 per cent) as in our unselected material (18 per cent).

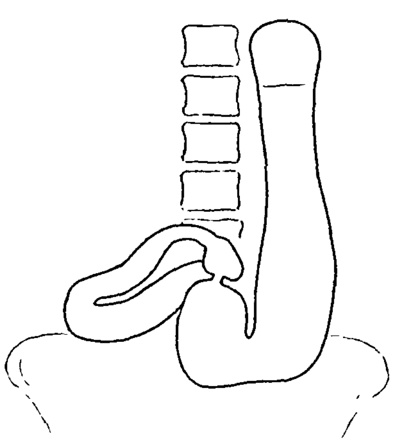
Fig. 1.—Roentgen appearance of duodenal bands pulling second portion of duodenum to right.

Most of the bands in the right upper quadrant are undoubtedly of congenital origin, although of course it would appear that acquired adhesions may also occur. Harvey found that the development of the cystocolic fold reaches a stable condition sometime previous to birth, and Bryant has shown that the incidence of these bands in the fetus is practically the same as that in the adult up to the age of 40 years. Makai found them frequently in infants and young children.

Incidence.—Adhesions of the second portion of the duodenum were encountered 85 times in our series of 1,754 roentgenographed patients, an incidence of 4.8 per cent. A search of the literature discloses no exactly comparable figures, but anatomic studies of the bands in this neighborhood, viz., hepatoduodenal, hepatocolic and hepatoduodenocolic, reveal an incidence of from 15.5 to 30 per cent. In fact, Bryant has shown that the hepatocolic ligament is the most frequent congenital adhesion in both sexes and at all ages. This discrepancy between the roentgen and the postmortem evidence can probably be explained either by the fact that adhesions of the first portion are excluded in our present series, or because the existence of some of the bands may have been overlooked at examination. The presence of duodenal bands was operatively confirmed in six of our cases.

Table 1.—*Duodenal Bands*

INCIDENCE	Per Cent
General, in 1,754 roentgenographed patients	5
Sex:	
Females	79
Males	21
Habitus:	
Asthenics	53
Sthenics	8
Associated low cecum (general incidence 18%)	36
CLINICAL FEATURES	Per Cent
Nausea (general incidence 15%)	44
Headaches (general incidence 23%)	44
Vomiting (general incidence 20%)	41
Vertigo (general incidence 3%)	20
Constipation (general incidence 46%)	54
Pain, upper abdominal (general incidence 28%)	40
Appendicitis, operation (general incidence 17%)	17
Appendicitis, "pus" (general incidence 16%)	8

Sex.—Sixty-seven of our patients (79 per cent) were females and 18 (21 per cent) were males. Practically the same incidence is reported by other clinical observers. Thus, Niles gives 80 per cent females in thirty-nine cases, and Taylor gives 74 per cent females in forty-seven cases chiefly of this variety. On the other hand the anatomists report that the distribution of these bands is approximately equal between the sexes (Bryant, 297 cases), or else decidedly favors the males (Harvey, 20 cases; Ancel and Sencert, 124 cases; Makai, 100 cases). The explanation of this discrepancy is not yet at hand.

Habitus.—In our group, forty-five patients (53 per cent) were asthenic and but seven (8 per cent) were sthenic.

Symptoms.—Only ten (11.7 per cent) of our cases showed no symptoms that could be definitely referred to the presence of duodenal bands. In the majority of cases the symptoms are characteristic enough to constitute a fairly definite clinical picture. The manifestations may be described as falling into two groups: reflex or toxic, and local. The former have been described in the literature under the name "duodenal migraine." They are in every way comparable to the reflex manifestations of low cecum. Nausea was present in thirty-eight cases, an incidence of 44 per cent, which is to be contrasted with a general incidence of 15 per cent in our 3,000 unselected cases. Headaches were also present in 44 per cent, to be compared with a general incidence of 23 per cent. Vomiting, frequently of bile, was present in thirty-five cases, an incidence of 41 per cent, as against a general incidence of 20 per

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[18] Neff, F. C., and Haden, R. L.: Congenital and Transduodenal Bands, Am. J. Dis. Child. **30**: 82-86 (July) 1925.

[19] Stockard, C. R.: Developmental Peritoneal Bands in Children, unpublished manuscript, 1931.

[20] Imboden, H. M.: Developmental Peritoneal Bands in Children, Unpublished manuscript, 1931.

[21] Haynes, R. S.: Developmental Peritoneal Bands in Children, unpublished manuscript, 1931.

[22] Farr, C. E.: Developmental Peritoneal Bands in Children, unpublished manuscript, 1931.

Incidence.—In 1,614 roentgenographed patients, 258 cases of redundant colon were encountered, an incidence of 16 per cent. Analysis of this relatively large group shows that the anomaly affects both sexes (54 per cent females) and both extremes of habitus (28 per cent sthenics vs. 24 per cent asthenics) with approximately equal frequency. Previous discrepancies may be explained on the basis of insufficient material.

Clinical Picture.—Since the publication of our first study[26] in 1924, other clinicians (Larimore,[27] White,[28] Gauss,[29] Dagnino[30]) have agreed that this anomaly probably represents a definite entity with a constant incidence and clinical picture. Although, as with all anomalies, symptoms may be absent or variable, the combination of constipation, pain and gas distress is characteristic.

Table 2.—*Redundant Colon*

INCIDENCE	Per Cent
General, in 1,614 roentgenographed patients	16
Sex:	
Females	54
Males	46
Habitus:	
Sthenics	28
Asthenics	24
CLINICAL FEATURES	Per Cent
Constipation (general incidence 46%)	69
Gas distress (general incidence 38%)	70
Pain, abdominal (general incidence 47%)	52
Pain, right lower quadrant (general incidence 9%)	12
Tenderness right lower quadrant (general incidence 19%)	24
Appendicitis, operation (general incidence 17%)	19
Appendicitis, "pus" (general incidence 16%)	16

The constipation, which is present in 69 per cent of cases (general incidence, 46 per cent), usually dates from birth, is characterized by long intervals between stools (often one week), and is on the whole not associated with marked systemic or general upsets. Gas distress is present in 70 per cent of cases as against a general incidence of about 38 per cent in our unselected material. There is often localized distention corresponding to the redundant loop, or else belching in a misdirected effort to relieve pressure in the splenic flexure.

Pain is present somewhere in the abdomen in 52 per cent of the cases (general incidence, 47 per cent). It is always due to superimposed spasm proximal to the point of redundance and may be associated with localized colitis, especially in patients who have acquired the cathartic or enema habit. The pains may suggest carcinoma, heart disease, gallbladder disease or appendicitis. Pain in the right lower quadrant was present in 12 per cent (general incidence, 9 per cent), and tenderness in the right lower quadrant occurred in 24 per cent (general incidence, 19 per cent). Appendectomy was performed in 19 per cent as compared to a general incidence of 17 per cent in our basic 3,000 cases.

Volvulus, although not encountered in this series, can occur only when the mesentery is elongated, as in redundant colons. It is our opinion, confirmed by the actual observations of several surgeons, that this accident usually follows violent efforts at purgation, resulting in irregular and atypical peristalsis.

Treatment.—The management of redundant colon consists essentially in the withdrawal of all forms of colonic abuse and the restoration of normal function by conservative procedures. The details of this therapy have been published elsewhere. The prognosis for relief is good. Surgical intervention should be reserved for cases of volvulus only.

THE HIGH CECUM

Description and Roentgen Appearance.—The cecum may be arrested in its embryologic descent at any stage between the liver and its normal resting place, which is the middle of the right iliac fossa. Since subhepatic ceca are rare (fig. 5)—we encountered but twenty-one cases in which the cecum was at or above the iliac crest —we have included all ceca occupying a position not lower than the upper third of the iliac fossa in a group which we have arbitrarily designated "high cecum" (fig. 6). The exact roentgen criteria delimiting this group have been published elsewhere.[31]

The diagnosis of high cecum is best made roentgenologically nine hours after the ingestion of an opaque meal. In some cases the cecum is attached to the liver, but the proximal transverse colon hangs down, festoon-like, in such fashion as to resemble a normal ascending segment. This may cause confusion unless observations are made in the right oblique position. In some 4 per cent of cases (general incidence, 2 per cent) the vacant right iliac fossa is occupied by a loop of pelvic colon. This arrangement has already been described as a subvariety of the redundant colon. Its recognition is of some clinical importance because it may still further confuse surgeons in their attempt to locate the ectopic appendix in emergency operations in cases presenting high cecum.

Table 3.—*High Cecum*

INCIDENCE	Per Cent
General, in 1,583 roentgenographed patients	6
Sex:	
Males	73
Females	27
Habitus:	
Sthenics	71
Asthenics	5
CLINICAL FEATURES	Per Cent
Headaches (general incidence 23%)	18
Vomiting (general incidence 20%)	20
Constipation (general incidence 46%)	35
Appendicitis, operation (general incidence 17%)	24
Appendicitis, "pus" (general incidence 16%)	36

Incidence.—In our series of 1,583 roentgenographed cases, high ceca were observed in 102 (6 per cent). Males predominated strikingly over females (73 per cent vs. 27 per cent), as did sthenics (71 per cent) over asthenics (5 per cent).

Clinical Picture.—On the whole, this group is composed of robust individuals remarkably free from the common manifestations of functional digestive upset. In this respect they offer a striking contrast to the group of patients with low cecum next to be described.

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26. Kantor, J. L.: A Clinical Study of Some Common Anatomical Abnormalities of the Colon: I. The Redundant Colon, Am. J. Roentgenol. **12**: 414-430 (Nov.) 1924.

27. Larimore, J. W.: The Human Large Intestine in the New-Born and in the Adult, Ann. Clin. Med. **5**: 439-463 (Nov.) 1926.

28. White, F. W.: Studies of the Redundant Colon, Tr. Am. Gastro-Enterol. **29**: 132-146, 1927.

29. Gauss, Harry: Redundant Colon, Arch. Surg. **15**: 560-579 (Oct.) 1927.

30. Dagnino, Angel: Dolicocolias, Semana méd. **2**: 1780-1815 (Dec. 11) 1930.

31. Kantor, J. L., and Schechter, Samuel: Colon Studies: V. The High Cecum, Am. J. Roentgenol. **19**: 101-111 (Feb.) 1928.

by vertigo. These patients often exhibit other stigmas of physical, nervous or emotional instability.

The local symptoms are referable to the right lower quadrant. Spontaneous pain in this region, which occurs in 9 per cent of all patients, is observed in 13 per cent of cases of low cecum. Tenderness in the right lower quadrant is also present more often (23 per cent) than in the general series (19 per cent). When cecal stasis is associated with low cecum, the figures increase to 21 per cent and 28 per cent, respectively. It is undoubtedly for this reason that patients with low cecum constitute the most frequently appendectomized group of colon anomalies (24 per cent vs. 17 per cent, general incidence). Appendix removal is obviously unwarranted in most cases because: (1) There is nothing in the history of low cecum on which a diagnosis of appendicitis can be properly based, and (2) the observations at operation show the smallest proportion of "pus" cases of any group of colon anomalies that we have studied; namely, 10 per cent as against a general incidence of 16 per cent and an incidence in high cecum of 36 per cent.

Explanation of Symptoms.—In our original article [32] on low cecum, no explanation was offered for the symptoms encountered. Although it can hardly be claimed that the problem of mechanism has been solved, it is felt that progress has been made in the intervening six years. According to our present conception, the explanation is somewhat complicated and probably embraces the following considerations:

1. The local symptoms are presumably caused by cecal or proximal colon stasis.[33] These conditions are from one and a half to three times more common in low than in normal or high cecum. The pain and tenderness may therefore be readily explained by increased intracecal tension (local spasm).

2. To account for the reflex toxic symptoms, two distinct hypotheses are conceivable. According to the first, the cause resides in the cecum, cecal stasis with absorption of a toxin being the responsible factor. The available evidence is against the acceptance of any such hypothesis. Not only has no toxin been identified, but actual analysis of cases has shown that it is only in low ceca that cecal stasis is associated with increased frequency of headache and vomiting. Cecal stasis in normal or high ceca does not act so. Therefore the symptoms cannot be due to stasis as such, because this should be equally operative in all locations of the cecum.

According to the second hypothesis, the cause of the symptoms resides in the duodenum, where transient stasis is produced, no gross obstruction taking place. The transient retentions are assumed to result from the intermittent drag of the low cecum, the pressure being mediated through any of the structures that cross the second or third portion of the duodenum. These structures are the transverse mesocolon, crossing the second portion, and the right and middle colic artery, the superior mesenteric artery, and the root of the mesentery of the small intestine crossing the third portion. According to this view, the actual occurrence of symptoms would be favored by such features as the erect posture, stasis in the cecum, mesenterialization (hypofixation) of the ascending colon with increased mobility of the cecum, and the presence of duodenal bands. The latter adhesions would, by fixing the duodenum, tend to "step up" the effect of colonic dragging so that subminimal stimuli might become effective. The possible rôle of colonic hyperfixation has not yet been adequately appraised but is now being studied.

This theory receives perhaps its chief support from the publications of Bloodgood,[34] Kellogg, Quain,[35] Carslaw,[36] McConnell,[37] Nesbitt [38] and Duval, who have observed the rôle played by "prolapsed ceca," "giant ceca," and "right coloptosis" in the production of gross duodenal obstruction. Bloodgood, for example, actually resected the right colon in eleven cases of chronic dilatation of the duodenum and found these patients well, up to fifteen years later. Other surgeons have performed colopexy, with relief in similar obstructive cases. As already mentioned, in none of our patients were the symptoms so pronounced as to warrant surgical intervention.

Treatment.—The medical management of low cecum consists in treating the asthenic habitus, controlling the neurosis, fattening the patient, and relieving the cecal stasis, which may be accomplished by treating the distal constipation when present, thus clearing the track ahead.

Surgical treatment may be considered in those rare cases which, after careful study and prolonged and conscientious conservative treatment, show no evidence of improvement, though the patients demand that something be done for their relief. Under such circumstances, colofixation may be attempted.

SUMMARY

1. Statistical data resulting from eight years' combined clinical and roentgen study are presented for the following anomalies: (*a*) transduodenal bands, (*b*) redundant colon, (*c*) high cecum, and (*d*) low cecum.

2. The chief clinical aspects of transduodenal bands are their occurrence in asthenic women, their association with "duodenal migraine," and their mimicry of duodenal ulcer and gallbladder disease.

3. The chief clinical aspects of redundant colon are its occurrence in all builds and both sexes, its association with marked constipation and, less strikingly, with pain and gas.

4. The chief clinical aspects of high cecum are its occurrence in eupeptic sthenic males, and the ectopic position and increased tendency to inflammation of the appendix.

5. The chief clinical aspects of low cecum are its occurrence in asthenic women and its association with headaches and vomiting, and discomfort in the right lower quadrant.

6. An explanation is offered for the mechanism of the production of the toxic or reflex symptoms in low cecum.

7. The general significance of digestive anomalies is summarized.

145 West Eighty-Sixth Street.

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[32] Kantor, J. L.: A Clinical Study of Some Common Anatomical Abnormalities of the Colon: II. The Low Cecum, Am. J. Roentgenol. **14:** 207-215 (Sept.) 1925.

[33] Kantor, J. L.; Schechter, Samuel; and Marks, J. A.: Colon Studies: VI. Cecal Stasis: Its Clinical Significance and Relation to Proximal Colon Stasis, Am. J. Roentgenol. **24:** 1-20 (July) 1930.

[34] Bloodgood, J. C.: Chronic Dilatation of the Duodenum, Internat. S. Digest **1:** 259-270, 1926.

[35] Quain, E. P.: Chronic Duodenal Obstruction: Etiology, Symptoms and Treatment, New York M. J. **116:** 651-654 (Dec. 6) 1922.

[36] Carslaw, R. B.: Right Sided Visceroptosis, Brit. J. Surg. **15:** 545-604 (April) 1928.

[37] McConnell, A. A., and Hardman, T. G.: Abnormalities of Fixation of the Ascending Colon, Brit. M. J. **10:** 532-557 (April) 1923.

[38] Nesbitt, G. E.: Partial Duodenal Obstruction, Irish J. M. Sc. **5:** 147-186 (April) 1924.

can one explain the profound physical incapacity of these patients for so many weeks and months?

They all present practically the same type of history and date their weakness and loss of "pep" from their attack of grip several weeks or months before. Hence there is no illness (except possibly rheumatic fever or acute endocarditis) in which the physician should make so certain that the patient is not harboring a focus of infection that might enter the blood stream and damage the heart muscle, as in grip.

I wish to make an earnest plea for more serious consideration and thought being given these milder forms of grip during the convalescent stage. One sees individuals who have not felt well since their attack of grip, as long ago as ten years; yet many emphasize the fact that they were not critically ill. They probably got up too soon, or long before the processes of repair had taken place. Today, their chief abnormality is myocardial weakness. Hence one must presume that the milder forms that are now seen, if neglected, may show the same type of clinical symptoms in ten years.

One of the worse habits in clinical procedure is to allow certain diagnostic dogmas to become so firmly fixed in mind that nothing else can be seen. The feeling that most heart defects are dependent on valvular disease, that myocardial inefficiency is in proportion to the enlargement of the heart, and that the pulse rate is a true index of heart muscle tone has done more to cloud the true significance of early myocardial changes following acute infections than anything else.

Unfortunately there are no detectable means of accurately measuring myocardial disease. The muscle may be severely damaged and yet not show any specific evidence of what has occurred. This is best shown by referring to the myocardial changes during pneumonia. What is it that so weakens the pneumonic heart? No one knows, unless it is a toxic condition. Nothing is found that enables the pathologist to say "This is a pneumonic heart." So it is with grip. The heart muscle is markedly weakened, but nothing specific is seen.

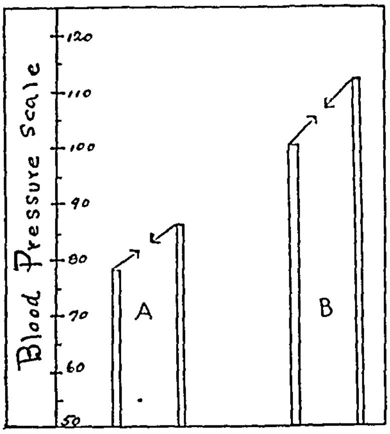

Fig. 1.—The average type of blood pressure before treatment in three cases of postfebrile cardiovascular disturbance in grippal infections: *A*, diastolic pressure poorly supported, indicating lack of muscle tone; *B*, systolic pressure like pulsus alternans, weak muscle, poor tone.

There is too great a tendency on the part of many to get away from the fundamentals of diagnosis that characterized the skill of the clinicians of a few decades ago. They did not practice short cuts to diagnosis but sought what they found. Today we have canned diagnosis as well as canned soup. If the can is empty there is no soup.

All physicians have patients with loud cardiac murmurs who live to a ripe old age; others with myocardial degeneration who show little evidence of muscle change, and still others with normal pulse rates, who present little suggesting cardiac injury but who later prove to have been severely hit. What one sees or hears alone, therefore, may not reveal the true status of heart muscle efficiency or explain all about cardiac disease. Muscle weakness is the most common of heart defects, and valvular leaks the most rare.

Although one may not feel that all heart muscle change is myocarditis, there is, nevertheless, no organ of the body more in physiologic sympathy with toxic absorption and bacterial invasion than the heart. The fact that the myocardium may ward off serious bacterial injury and may recover from every toxic strain, if given a fair chance, does not prove that the muscle has not been involved or should not be most carefully guarded for weeks and months after the febrile stage has subsided.

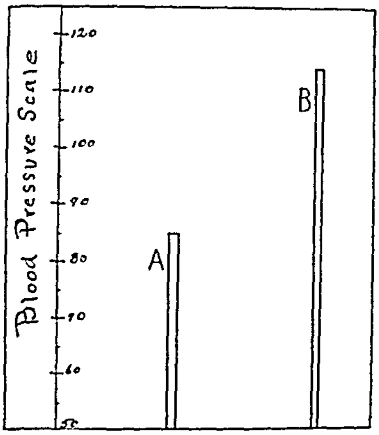

Fig. 2.—The average type of blood pressure after treatment in three cases of postfebrile cardiovascular disturbance in grippal infections: *A*, diastolic pressure, better supported or better tone; *B*, systolic pressure, better supported or better tone.

REPORT OF CASES

A typical case is taken from each of the three principal groups:

1. A patient who was acutely ill for four or five days and got up without return of fever.
2. A patient who was acutely ill for three or four days, got up, and the fever returned. He was in bed three or four days a second time.
3. A patient who was acutely ill for five or six days, got up, returned to work and forced herself along for two months, when her condition was diagnosed as nervous breakdown and she was sent home; as she still did not improve, she came to the seashore.

Case 1.—A. B., a white man, aged 38, the office manager of a manufacturing concern, complained of great physical weakness following the slightest effort and of loss of pep. The family history was irrelevant. He had always considered himself physically fit. He had played golf and had gone on long trips in the mountains, without fatigue. The present illness began rather suddenly, four weeks before, with aching pains and chilly and cold sensations, followed by perspiration. The temperature was 103 F., the pulse 76, and respiration 17. There was no cough or any upset of the gastro-intestinal tract. After the patient had been in bed four days, with temperature ranging from 101 to 103 F., he perspired profusely and the temperature became normal. He got up the following day and came to the seashore. He kept out in the open, walked, went to shows and window shopped but did not improve.

On physical examination the patient appeared well nourished and did not look ill; the face and skin showed good color, but the whole superficial circulation was dilated and of poor vasomotor tone. The chief interest centered about the heart, which was not enlarged; the sounds were sluggish and distant; the pulse was 70 and was regular in rate and rhythm. The blood pressure was 115 systolic and 90 diastolic but was poorly supported, as in pulsus alternans. After hopping on one foot thirty times, the patient became very tired and short of breath. The blood pressure was 120 systolic and 85 diastolic, which is not a normal response.

Treatment consisted of limiting the patient's activities to the lobbies and porches of the hotel; rest in the afternoon, and tonic doses of digitalis and nux vomica to tone up the heart muscle. One week later, the blood pressure was about the same but was better supported, and the heart tone was much improved. After another week the patient felt fine.

study a majority proved to be streptococcic infections and a certain number pneumococcic infections of the upper respiratory tract. How much of secondary infection is due to the streptococcus I do not think any of us know as yet. My suggestion would be that the majority of these cases are instances of infection of the upper respiratory tract, some caused by the streptococcus, some by the pneumococcus, and some possibly by both. What happened in these patients? Had they definitely cardiac damage? Were they patients who possibly had had a chronic focus of infection and in whom the acute infection was enough to make material difference for the time being; or how much may have been due to vasomotor disturbance? My feeling would be that the condition is probably caused by a combination of these two factors, with vasomotor disturbance perhaps playing a considerable part. I think we would all agree with Dr. Thayer that the lesson to remember is that acute infections of the upper respiratory tract may be a comparatively serious matter, and that a period of rest afterward is essential. We know how difficult it sometimes is to secure that rest, but we ought to be certain that these patients are back to a reasonable normal before we permit them to get out of bed.

Dr. L. G. Rowntree, Rochester, Minn.: There are various groups at work in this country investigating the nature of the common cold. It seems to me that this is one of the points of attack on this problem, because it is difficult to say what is a common cold and what is influenza. I wish to emphasize the importance of influenza and of the common cold in relation to disease in general. This might best be emphasized by specific instances. A father said to me, "Why is it that I who have had gallstones, have an attack of jaundice, and my son, who has nephritis, has an attack of interstitial nephritis, after colds?" Colds are responsible for exacerbation of preexisting disease, whenever they are found in the body very frequently. On the other hand, they may initiate disease just as frequently. When the disease does not localize in an individual organ it may attack the body as a whole—and I am inclined to feel that the illness of Dr. Andrews' patients was of the body and the mind, in many instances, as well as of the heart. The question arises as to what should be considered an indication of trouble. Dr. Thayer's suggestion as to prolonged rest is an excellent one, but I do not believe that it will be followed generally. If, however, one recognizes exhaustion following cold as of equal importance with organic disease and then applies Dr. Thayer's rest remedy, I believe that it would save an infinite number of patients from an infinite amount of illness. This exhaustion may go on, literally for years in many cases, and it may incapacitate the patient sometimes for a year, sometimes for life. Hence it is a serious problem. I should like to ask Dr. Andrews one question. These patients have gone to the seashore. Is not the seashore environment an important factor in the recoveries reported, as well as the rest, the massage and the drugs employed?

Dr. Moses Salzer, Cincinnati: I should like to ask the author what he means by tonic doses of digitalis.

Dr. F. R. Taylor, High Point, N. C.: It has been stated that some of these cases of so-called influenza have been found to be streptococcic or pneumococcic infections, and I am eager to know how that determination is arrived at. I have always assumed that one might find streptococci or pneumococci in the upper respiratory tract in any one. I should like to know how to determine whether the infection is due to these organisms which one finds or to infectious agents which Dr. Thayer has spoken of, which one cannot find.

Dr. F. C. Atwood, New Haven, Conn.: I should like to ask Dr. Andrews whether he has had any experience in the use of a convalescent serum in the treatment of influenza.

Dr. Clarence L. Andrews, Atlantic City, N. J.: My cases were based on a group of patients whom I saw never earlier than two weeks following their illness. They were sent to the seashore because they did not gain at home. I tried to check the etiologic factors, but the data varied so much that they were discarded. If you recall what I said, none of the patients showed any of the usual evidences of cardiac disease or any etiologic factors except a history of so-called grip. I emphasized grip rather than influenza because of the uncertainty of what causes it. I merely used the term that every one else uses. I do not know myself what causes it; and so far as I know, no one else does. My idea in presenting the paper was not so much to point out the cause of grip as to emphasize the cardiac disturbances which follow these mild types. The same group of physicians would probably regard them as unimportant even if streptococcic in character. What I wish every one to do is to watch the cardiovascular system. I do not know whether the condition is caused by myocardial or vasomotor disturbances, by a depression of the suprarenal balance or by a combination of all three. I believe that there is a big nervous "let down" or, as Dr. McCrae said, a combination of everything. Answering Dr. Salzer regarding digitalis, I do not use a specific dose but just enough to tone up the muscle. All know what a poorly toned muscle is like; it cannot hold itself. I rarely give more than 10 drops and never with the idea of digitalization. Dr. Rowntree mentioned the great importance of finding the cause; but, as previously stated, I saw these cases too late for that. All these patients do well at the seashore, if they do not overexert themselves. The question of Dr. Taylor is really the question of Dr. McCrae; that is, how to determine whether the infecting organisms are streptococci or pneumococci. Of course, my paper did not deal with the causes. Answering Dr. Atwood, I have had no experience in the use of a convalescent serum in the treatment of influenza.

EXPERIMENTAL SHOCK

A STUDY OF ITS PRODUCTION AND TREATMENT *

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AND
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A great deal of confusion has arisen from the use of the term "shock." Conditions that are probably little related to one another are classified together under this general heading. Several recent workers have suggested other terms in an endeavor to lessen the misunderstanding. Until the factors that are responsible for the decline in the volume of circulating blood and the drop in the blood pressure are better understood, it would probably be advisable to designate the initiating agent as, for example, shock following trauma to an extremity, shock following burns, or shock following injury to the central nervous system.

Shock resulting from injury may be roughly divided into two types: (1) primary shock, in which a low blood pressure follows immediately, and (2) secondary shock, in which at least an hour usually elapses between the time of injury and the development of a low blood pressure. It is the latter type with which surgeons are most frequently confronted, and this paper is limited to a consideration of it. Many theories have been offered in an effort to explain the mechanism of the production of secondary shock. These include the theories of (1) vasomotor exhaustion, (2) inhibition, (3) fat embolism, (4) acidosis, (5) acapnia, (6) suprarenal hyperactivity and hypo-activity, and (7) toxemia. Probably the theory with the largest number of supporters at the present time is the last one mentioned, which maintains that the decrease in the blood volume and the decline in the blood pressure following injury to large areas of tissue are due to the absorption of toxins into the general circulation. These toxic products are thought to be similar to histamine in their actions.

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* From the Department of Surgery of Vanderbilt University School of Medicine.

* Read before the Section on Surgery, General and Abdominal, at the Eight-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

determined by the same method as was used in the experiments on severe trauma. The average difference amounted to 3.66 per cent of the body weight. As has been stated, the fluid that escaped into the injured part had in the main the same composition as the blood plasma. Experiments were then performed on the graded removal of blood plasma, in which the loss that produced death was determined. The results indicated that the loss of plasma into the injured area following mild trauma to an extremity had been responsible for the decline in blood pressure.

In the experiments on trauma to the intestines, the amount of fluid that escaped through the exposed and injured peritoneal surfaces as well as the excess of blood that accumulated in the traumatized intestines was roughly determined. Comparison of these results with those obtained in plasmapheresis experiments of approximately the same duration indicated that the loss of plasma from the circulating blood stream had been responsible for the decline in the blood pressure. We do not mean to imply that the temporary decline in blood pressure that is frequently encountered in abdominal operations is usually due to the loss of fluid through the exposed peritoneum. This condition is probably more closely related to primary shock, in which there is a decrease in the circulating blood volume due to the passage of blood into large areas of dilated capillaries.

In animals that were very deeply anesthetized by soluble barbital, the amount of plasma lost into a burned area that was restricted to one side of the body was determined by dividing the body into symmetrical halves and weighing them. Comparison of the results of these experiments with those obtained in studying the effects of plasmapheresis indicated that the loss of plasma had been sufficient to account for the decline in blood pressure. Most of these experiments were less than twenty-four hours in duration. In view of the results of these experiments, it seems possible that the early beneficial effects following the use of tannic acid and epinephrine in treating burns may be due to the lessening of the loss of fluid from the weeping surface rather than to the prevention of the absorption of toxins. It seems likely that deaths occuring within twenty-four hours following a burn are due in the main to the loss of plasma through the injured capillaries. In burns associated with longer survival periods, toxins probably exert their effects.

Experiments by Harris and Blalock[3] showed that there is an increase in the water content of the tissues at the site of injury and a decrease elsewhere. After trauma to an extremity there is an increase in the water content of muscle in the injured area and there is a decrease in the water content of skeletal muscle in other parts of the body. There is an increase in the water content of the subcutaneous tissues of a burned area, and the subcutaneous tissues elsewhere lose water.

The observations recorded thus far indicate that the local loss of fluid at the site of injury is the most important factor in producing the decline in blood volume and blood pressure in shock. Evidence for the action of toxins was not found in these experiments. Following severe trauma, the fluid that was lost consisted in the main of *whole blood. When the injury* was less severe, the fluid that escaped through the damaged capillaries had approximately the same composition as the plasma of the blood.

TREATMENT

There are two methods by which the low blood pressure in shock may be elevated: the giving of vasoconstrictor drugs and the addition of fluids to the circulating blood stream.

The Giving of Vasoconstrictor Drugs.—If we limit our consideration to the shock that develops following trauma and remember that the blood pressure is low because there is a decrease in the blood volume, treatment that is not directed toward increasing the blood volume does not seem correct. The blood supply to organs is already lessened because of the decrease in the circulating volume of blood and the vasoconstriction that is usually present, and further vasoconstriction that follows the giving of drugs decreases still more the total blood flow to organs, even though the blood pressure is raised. The increase in blood pressure that follows the injection of a vasoconstrictor drug is usually sustained for only a short time. It is well to remember that the repeated injections of large amounts of epinephrine will produce shock in previously normal dogs.

The Addition of Fluids to the Circulating Blood Stream.—Since there is a diminution in the volume of blood in the circulation in shock, treatment should be directed toward increasing this amount. For this purpose, blood and so-called substitutes for blood have been employed. The results following the use of most of the substitutes have not been very encouraging. Theoretically, a solution of acacia should most nearly fulfil the conditions, but there are some objections to its use.

The fluid that has probably been used more frequently than any other in treating shock is physiologic solution of sodium chloride. It has been known for a long time that salt solutions as well as other crystalloids do not remain in the blood stream even of normal dogs very long after their injection. This information has explained, in part at least, the fact that favorable responses in the blood pressure frequently do not follow the intravenous injection of salt solution. We have the impression that at times in patients with low blood pressures the condition is actually worse a short time following the introduction of the fluid than it was before. Studies were carried out in an attempt to obtain more information on the cause of failures. The effects of various other solutions were studied but, because of lack of space, only isotonic saline solution will be considered here.

The type of injury that was chosen for these experiments was that of trauma to the intestines. When the intestines are continuously passed between the fingers and no fluid is introduced intravenously, since the fluid that is lost through the exposed peritoneum has the same composition as the plasma of the blood stream, there is practically no alteration in the amount of protein in a unit volume of plasma. However, there is a large decrease in the total amount of plasma in the blood stream and hence a great diminution in the entire amount of protein. When isotonic salt solution is injected continuously intravenously while the intestines are being traumatized, there is a decrease in the total amount of plasma and at the same time a decrease in the percentage of protein in a unit volume of plasma. In other words, the injected salt solution, as it escapes, takes protein with it, resulting in a dilution of the protein in the fluid that remains in the blood stream. This, of course, decreases the ability of the blood stream

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[3] Harris, P. N., and Blalock, Alfred: Experimental Shock: X. Observations on the Water Content of the Tissues of the Body After Trauma and After Hemorrhage, Arch. Surg. 22: 638-648 (April) 1931.

Clinical Notes, Suggestions, and New Instruments

AGE INCIDENCE OF CARCINOMA OF THE CERVIX

TWO THOUSAND, ONE HUNDRED AND EIGHTY-ONE CONSECUTIVE CASES AT THE HOWARD A. KELLY HOSPITAL

Edwin F. Daily, M.D., Baltimore

A question frequently asked in recent years has been "Is carcinoma of the cervix occurring in younger women more often than it did a few decades ago?"

A careful tabulation of 2,181 consecutive cases of squamous cell carcinoma has been made (table 1). The cases have been grouped into yearly divisions from 1913 to 1931, and the percentage of occurrence for each ten years of life and the average age of occurrence for the entire group have been computed. The ages given are the ones at the time the diagnosis was made. The onset of the first symptoms was computed to be on the average 9.3 months earlier. The average age of onset then would be 47.39 years, and the age at the time of diagnosis 48.16 years. The youngest patient in this series was 22 years, the oldest 83 years, of age.

For comparison, Pozzi's statistics as published in his "Treatise on Gynecology," 1891, are used (table 2). In a series of 3,471 cases the average age of onset for his patients was 48.2 years. This is practically the same as in our cases. The average age incidence of cases for each ten years span of life is also practically the same in his series as in ours.

Table 1.—*Age Incidence of Squamous Cell Carcinoma of the Cervix at the Howard A. Kelly Hospital*

			Age													
			20 to 30		30 to 40		40 to 50		50 to 60		60 to 70		70 to 80		80 to 90	
Year	Number of Cases	Average Age per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total	2,181	48.16	73	3.34	404	18.5	718	32.9	620	28.5	310	14.3	53	2.44	4	0.18
1913	41	48.6	1	2.4	7	17.0	16	39.0	10	24.0	6	14.5	1	2.4	0	0.0
1914	115	50.2	1	0.87	15	13.0	34	29.5	46	39.8	17	14.8	2	0.74	0	0.0
1915	85	51.1	1	1.18	11	12.95	24	28.5	31	36.5	15	17.65	3	3.53	0	0.0
1916	103	47.5	3	2.9	28	27.2	28	27.2	27	26.2	13	12.6	4	3.88	0	0.0
1917	73	48.4	0	0.0	9	12.3	34	46.6	18	24.6	9	12.3	3	4.1	0	0.0
1918	104	49.6	3	2.89	17	16.35	36	34.4	25	24.0	19	18.3	4	3.85	0	0.0
1919	164	49.3	4	2.44	25	15.2	53	32.3	55	33.5	25	15.2	2	1.22	0	0.0
1920	158	47.9	4	2.53	32	20.3	52	32.9	43	27.2	25	15.8	2	1.27	0	0.0
1921	135	49.1	1	0.74	42	31.1	48	35.5	20	14.8	22	16.3	2	1.48	0	0.0
1922	108	48.9	2	1.85	16	14.8	37	34.2	38	35.2	11	10.2	4	3.7	0	0.0
1923	130	49.7	1	0.75	28	21.5	46	35.5	34	26.0	18	13.8	3	2.3	0	0.0
1924	97	46.1	6	6.2	18	18.5	27	27.8	29	29.9	12	12.4	5	5.1	0	0.0
1925	132	47.8	5	3.8	23	17.4	47	35.5	35	26.5	19	14.7	3	2.2	0	0.0
1926	115	47.9	7	6.1	18	15.6	40	34.7	28	24.3	20	17.4	1	0.87	1	0.87
1927	142	48.1	9	6.3	23	16.2	43	30.3	47	33.1	18	12.1	2	1.4	0	0.0
1928	140	49.3	4	3.8	19	14.6	45	34.6	36	27.7	24	18.5	2	1.5	0	0.0
1929	124	47.3	9	7.3	25	20.2	36	28.8	38	30.7	12	9.7	4	3.2	1	0.8
1930	132	47.8	6	4.5	25	18.9	41	31.0	44	33.3	12	9.1	2	1.5	2	1.5
1931	93	46.5	6	6.4	23	24.7	31	33.3	16	17.2	13	14.0	4	4.3	0	0.0

Of interest in table 1 is the fact that for the past seven years the average number of cases between the ages of 20 and 30 is above the average for the whole series at this age. We have no explanation to make for this, but it has been the impression of those seeing many of these cases each year that the disease is now occurring in younger women more often.

Table 2.—*Age at Which Cancerous Disease of the Cervix Begins**

Age	Number of Cases	Percentage
17 years	1	0.026
19 years	1	0.026
20 to 30 years	114	3.3
30 to 40 years	770	22.2
40 to 50 years	1,196	34.2
50 to 60 years	856	24.6
60 to 70 years	340	9.8
70 years	193	5.5
Total	3,471	

* Average age incidence equals 48.2 years.

CONCLUSIONS

The average age incidence of cancer of the cervix has not changed in the last fifty years.

At this clinic there has been a very slight increase in the incidence of occurrence between the ages of 20 and 30 during the last few years. Although cancer of the cervix is chiefly a condition of middle life, its occurrence in younger women must always be kept in mind, especially by the general practitioner when he faces a differential diagnosis of cervical disease.

1418 Eutaw Place.

Committee on Foods

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

OVALTINE NOT ACCEPTABLE

A Chocolate Flavored Dry Malt Extract Containing a Small Quantity of Dried Milk and Egg

Ovaltine, widely known throughout the world because of extensive advertising, is sold with two slogans: "A food beverage" and "A food concentrate." Because of its extensive exploitation, because it is stated to be widely recommended by physicians as a building and strengthening food in convalescent and other invalid conditions, because of the special stress placed on it as a means of inducing calm, natural sleep without the use of drugs, and because recent advertising has emphasized the alleged vitamin and diastase content, the Committee on Foods thought it desirable to consider the nature of the product and the claims made for it even though this preparation has not been voluntarily submitted to the committee.

Ovaltine as sold in the United States is manufactured by the Wander Company, Chicago. The Connecticut Experiment Station in 1917 reported its composition as follows:

Bulletin 200, Food Products and Drugs, 1917, page 154: "Ovaltine. Ovaltine, Tonic Foods Beverage. A. Wander, London, England. 'A concentrated extraction from malt, milk and eggs, flavored with cocoa.' 'Is rich in lecithin, the assimilable organic compound of phosphorus. It is thus a valuable article of food in cases of mental and nervous exhaustion.'

Water	1.03
Ash	3.52
Protein (N × 6.25)	12.75
Fat	5.58
Fiber	0.64
Nitrogen-free extract	76.48
Lecithin phosphoric acid	0.10
Reducing sugars (chiefly maltose, lactose, dextrose and dextrins)	70.01
Active amylase	present
Starch	trace
Calories per 100 grams	407

"The product appears to be composed of the foods claimed. The small amount of lecithin phosphoric acid present, 0.10 per

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SATURDAY, DECEMBER 12, 1931

BLOOD DISTURBANCES AND THROMBOGENESIS FROM CLINICAL INTRAVENOUS INJECTIONS OF DEXTROSE SOLUTIONS

In intravenous medication, more attention is often devoted to the details of technic of the injection than to the changes that may occur in the blood and in important physiologic functions following such administration. Even the apparent benefits of such injections are sometimes attributed to some trivial modification of a technic or to some minor or inconsequential modification of a solution. More important than such technical accessories in the choice of intravenous medication is the fundamental fact that agents, drugs or solutions so injected act as foreign agents in the blood stream. The presence of foreign bodies in the normal circulation, the direct effects on the blood and the indirect or reflex effects on various functions are obviously significant. The fact that the disturbances might be greater and more serious in pathologic conditions, in which intravenous solutions may be indicated, has scarcely received the consideration it deserves. Hence the results with intravenous dextrose solutions on patients reported by Stuber and Lang [1] of the City Hospital in Kiel, Germany, are timely, and worthy of the attention of all physicians who practice such injections.

Using 20 cc. of 20 per cent dextrose solution, Stuber and Lang made observations of changes in the coagulation time, glycolysis, alkali reserve, p_H, and protein and chloride content of the blood of a large number of healthy individuals and of patients with cardiac decompensation. The most notable and constant change was an acceleration of blood coagulation, which was faster in patients with decompensation than in normal individuals. Other noteworthy changes in decompensation were increases in glycolysis and of lactic acid, also variations in mineral content, disturbed albumin-globulin ratio with increases in the globulin and fibrinogen fractions, increase in thrombocytes associated with a decrease in their electrical charges, and agglutination of platelets. All changes in blood chemistry were more extensive in patients with decompensation than in the normal. Collectively, the phenomena observed were characterized as profound physical-chemical changes in the blood, which would favor the formation of thrombi and emboli. The more definite changes in decompensation were attributed to blood stasis, a condition known to favor embolism or thrombosis, which may be directly initiated and thus rendered easier of formation by a foreign intravenous solution. The blood changes caused by the latter fulfil the requirements for thrombus formation, according to previous studies of the same authors.[2] These results of intravenous medication merit serious thought.

Intravenous injections in general should be appraised more carefully than is usually the case. The results reported by Stuber and Lang are convincing; in fact, they confirm experimental evidence previously emphasized by The Journal. Against a background of such correlated experimental and clinical evidence, much that has been claimed for intravenous medication appears doubtful.

The clinical significance of these phenomena cannot be overlooked in view of reported cases with disturbing symptoms and even of death following intravenous injections of dextrose. Such reports have been recently published by Askey and Hall,[3] Ylanan,[4] and Opitz.[5] The symptoms, which appear to be common to such injections, consist of flushing of the face, headache, marked rise of body temperature, severe chills, diuresis and sometimes collapse. Although death in Askey and Hall's case was attributed to the intravenous dextrose, caution should be exercised in the correct interpretation of clinical cases with severe disease. Yet it is under just such conditions that the results of Stuber and Lang enjoin great caution on the physician attempting treatment by the intravenous method. In this connection, the recent report by Helmholz [6] of the Mayo Clinic, on the effects of hypertonic sucrose solutions injected intravenously, should not be overlooked. This solution is reported to have caused renal tubular injury from which recovery appears to have occurred, although some chronic changes persisted.

In contrast to the experimental and clinical evidence here cited is the commercial propaganda disseminated through the organs of proprietary manufacturers who advocate and exploit all sorts of substances and solutions for intravenous injection. It is unfortunate that credulous and uncritical physicians accept these claims and thoughtlessly jeopardize the lives of their patients. Probably the height of absurdity, if not of recklessness, thus setting up, in keeping with previous international agreements, a system or scheme for accounting for the manufacture of narcotic drugs and their distribution in the international trade. More stringent control is to be exercised over imports and exports, and diacetylmorphine (heroin) is to move but once in international traffic.

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[1] Stuber, B., and Lang, K.: Arch. f. exper. Path. u. Pharmakol. **154**: 50, 1930.

[2] Stuber, B., and Lang, K.: Arch. f. exper. Path. u. Pharmakol. **154**: 22, 1930.

[3] Askey, E. V., and Hall, E. M.: California & West. Med. **32**: 394 (June) 1930.

[4] Ylanan, C. R.: J. Philippine Islands M. A. **10**: 440 (Oct.) 1930.

[5] Opitz, H.: Klin. Wchnschr. **1**: 117 (Jan. 15) 1922.

[6] Helmholz, H. F.: Proc. Staff Meet. Mayo Clin. **6**: 124 (Feb. 25) 1931.

The Geneva convention of 1931, for limiting the manufacture of narcotic drugs, is of great potential value to the population of the United States. It embodies many features found in the legislation now in effect in the United States, constituting an additional reason for ratification by the Senate. Its ratification should have the support and endorsement of the medical profession.

FOOTBALL FATALITIES

A leading educator[1] remarked several years ago that nothing is more exasperating than to be compelled to witness a great tragedy which we know could be prevented if we could only do the right thing. He added that probably physicians in earlier times felt much the same way when they saw their patients die by the scores during some epidemic with which they were powerless to cope. Until the last half century, he continues, all who had to do with disease were so bound by the bonds of ignorance that they were well-nigh powerless. Meanwhile the progress of science and the unremitting efforts of its numerous devotees in the field of medicine have brought about extremely commendable changes resulting in a shift from the high mortality of an earlier period to the relatively low figures for the present generation. It has been a story of the routing of many scourges, the elimination of the terrors of wound infection, the conquest of yellow fever, the control of malaria, and varied similar experiences that have increased human happiness. Meanwhile great concern is obvious for less spectacular menaces—for the losses from lowered physical efficiency, preventable disorders and bodily injuries. Industrial hazards are attracting the attention of preventive medicine. Efforts are widespread to avert the growing number of accidents incident to the "speed" of present-day life.

Occasionally, disconcerting reports that cannot be lightly thrust aside arouse thoughtful persons to cynical reflections. There is, for example, the annual record of the toll of the firearm, the firecracker and similar "patriotic playthings" that tend to make Independence day recall unnecessary deaths and injuries. The Fourth of July fatalities seem to be confined for the most part to the less intelligent groups in our population. Another harrowing challenge, however, presents itself at the very gates of our most distinguished centers of learning, the American schools, colleges and universities. The now closing football season has taken a toll of thirty or more lives in addition to producing injuries the number and consequences of which cannot even be conjectured. Each new tragedy or distressing accident arouses nation-wide expressions of sympathy and protest only to be completely forgotten in the excitement of the next game.

Football is not a game for the untrained; it calls for strength and courage; its accidents and fatalities need not, however, be inevitable. Those who are devoting their energies to the conservation of life should not sit by listlessly and join in the coaches' lament of "a sad but inevitable death." We must not condone the reckless disregard of the limitations of human endurance and the return of injured players to the field, all for the glory of Alma Mater and the enjoyment of thousands of holiday seekers in the great stadiums.

Physical culture and athletic sports are not intended to develop supermen. At the recent White House Conference on Child Health and Protection, Secretary Ray Lyman Wilbur[2] remarked that we want to see our children develop into adult citizens with wholesome bodies and prepared minds, both under the control of the developed will operating in the atmosphere of what we call character. Does such a program call for a mortality record incident to the tasks? Surely not! The general objectives of a rational plan are to inculcate health habits; to develop the body harmoniously through systematic exercises; to correct physical defects; to form habits of exercise for use in after-school days; to provide situations which will arouse and increase the qualities of courage, fair play, self sacrifice and loyalty; and to give instructions in citizenship through leadership and response to commands.[2] We should be able to discover a way by which these aims can be attained without loss of life in our athletic ventures. Football has a greater incidence of fatalities and permanent injuries than any other sport. The rules committee may well consider carefully what it can do to lessen the hazards of this game.

PANACEAS FOR THE COMMON COLD

With the first blasts of wintry air a considerable number of our citizenry begin to develop the running of the nose, the lacrimation, the depression, the fever and the other symptoms commonly associated with the onset of a cold. No doubt, the vast majority of the practice of physicians is concerned with symptoms of this character. Probably no other disease is responsible for so much temporary disability. From the teachings of the hygienists, the sanitarians, the public health writers and physicians, most of the public have learned that the symptoms can be abated and the cold controlled in the majority of instances if the patient will go promptly to bed and stay there for at least three days. Actual observation indicates that less than one half of one per cent of people really follow this advice.

The promoters of various types of devices and foods associated with health maintenance have been prompt much happiness. The duration of life for diabetic children, who seldom survived diabetes for more than two years in former days, has already been trebled. Joslin says, "The diabetic child of today is a living and not a dying diabetic." In view of these cheering statements it will readily be understood why scientists are at present so deeply concerned about the chemical nature and properties of insulin, the substance that possesses such remarkable physiologic potencies. Indeed, its uniqueness seems to be accentuated as the years pass by. The early investigations of insulin gave indications that it is either a protein or a protein-like substance or something closely associated with proteins in nature. Very active preparations give many of the familiar protein test reactions; they yield familiar amino-acids so characteristic as protein disintegration products; they are destroyed by digestion with proteolytic enzymes, namely, trypsin and pepsin. Then came the splendid contributions from the laboratory of Abel at Johns Hopkins University, resulting in the preparation of highly purified, optically active crystalline products. To the chemist the production of crystals out of amorphous residues always represents an apparent step in the direction of greater purity. Using crystalline insulin as a material for new studies, Sjögren and Svedberg[2] of the University of Uppsala have estimated its molecular weight by their ultracentrifugal methods. It approximates 35,100. Insulin is stable from a p_H of about 4.5 to about 7.0; at higher or lower hydrogen ion concentrations the molecule is broken into smaller units. The molecular weight, sedimentation constant, molar frictional constant and molecular radius of insulin are within the limits of error identical with the corresponding constants for egg albumin and Bence-Jones protein. This circumstance makes it extremely probable that insulin is a well defined protein and that the physiologic activity of this hormone is a property of the insulin molecule itself or of some special group within it. Recent months have witnessed the successful crystallization of several enzymes—urease, pepsin, trypsin and amylase—and the growth of new evidence that these, too, presumably belong to the category of proteins.

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[1] Harris, F. S., and Butt, N. I.: Scientific Research and Human Welfare, New York, Macmillan Company, 1924.

[2] White House Conference, New York, Century Company, 1930.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 11:15 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 19. Diphtheria Prevention.

Five Minute Health Talks may be heard over Station WBBM of the Columbia Broadcasting System from 2:25 p. m. to 2:30 p. m. on Monday, Wednesday and Friday.

The program for the week is as follows:

December 14. Diphtheria Prevention.
December 16. Diphtheria Prevention.
December 18. Diphtheria Prevention.

The broadcast this week is in conjunction with the Chicago health department.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Drs. William R. P. Clark and John H. Graves have been appointed members of the state board of health to succeed Drs. Adelaide Brown and Edward F. Glaser, resigned.——Dr. Eli A. Kusel has been appointed city health officer of Oroville, and Dr. Edwin B. Godfrey, health officer of San Bernardino County to succeed Dr. Samuel B. Richards.——The city of Santa Paula health department has been taken over by the county health department.

Outbreak of Trichinosis.—Sixteen cases of trichinosis caused by the eating of jerked bear meat were recently reported in Vallejo, San Francisco and Oakdale. September 16, a Vallejo boy killed a bear in Trinity County. A number of persons ate steaks, roast and liver from the bear and the remainder was jerked and smoked. A San Francisco man took a portion of the jerked meat home and the remainder was brought to Vallejo. This meat was distributed among families in Vallejo, San Francisco and Oakdale, where cases from this source occurred. The boy who shot the bear died, October 13. According to the state department of health in its bulletin, November 14, it is possible that more fatalities will occur. A sample of the meat sent to the state laboratory was found positive for Trichinella spiralis.

COLORADO

License Reinstated.—At a meeting of the state board of medical examiners, October 6, the license of Dr. George D. Hoschouer, Denver, was reinstated. Dr. Hoschouer's license had been revoked, April 7, for unprofessional and dishonorable conduct in associating with an unlicensed man.

Society News.—Dr. Max M. Ginsburg addressed the Medical Society of the City and County of Denver, November 17, on "Septicemia in Children"; Dr. George M. Blickensderfer presented a case of psychoneurotic vomiting.——Dr. Marion D. Douglass, Jr., Cleveland, addressed a meeting at the University of Colorado School of Medicine, Denver, November 23, on "Tumors of the Urethra."

FLORIDA

Society News.—The Florida Public Health Association held its annual public health conference, December 7-10, in Jacksonville. The opening address was given by Governor Doyle E. Carlton on "The State in Public Health"; among others, Dr. John A. Ferrell of the Rockefeller Foundation, New York, spoke on "Education and Training of Public Health Personnel."——Dr. William E. Ross, Jacksonville, addressed the Orange County Medical Society, Orlando, October 21, on "Milk, with Special Reference to the Value of Certified Milk to the Individual and a Certified Dairy to a Community," and Dr. Joseph H. Chiles, Orlando, gave a paper on "Infantile Impetigo Contagiosa."——The Central Florida Medical Society was addressed at its semiannual meeting in Ocala, October 15, by Drs. Gaston H. Edwards, Orlando, and James Ralston Wells, Daytona Beach, on "The County Society" and "The Public Relations Committee's Activities," respectively. Dr. Edwards also addressed the October 14 meeting of the Polk County Medical Society in Bartow on "Cooperation of Individuals and of County Societies as a Means of Benefit to Them and to the State Association," and Dr. Kenneth Phillips, Miami, spoke on "Essential Nature of Bronchial Asthma."——Dr. Robert A. Strong, New Orleans, addressed the Duval County Medical Society, Jacksonville, October 2, on "Our Newer Knowledge of Nutrition."

GEORGIA

Meningitis at Federal Penitentiary.—Four cases of spinal meningitis with two fatalities were reported between November 8 and November 19 at the federal penitentiary, Atlanta. Three new cases were reported, November 28. According to the newspapers, no new commitments will be sent to the penitentiary until the disease has subsided. Prisoners destined for the institution will be sent to Leavenworth and to the reformatory at Petersburg, Va. It was stated that the Atlanta penitentiary is overcrowded, the present population having been pregnancy.——The Minneapolis Surgical Society was addressed, December 3, among others, by Dr. Daniel A. MacDonald on "Double Uterus and Vagina with Unilateral Atresia."——Dr. Alfred W. Adson, Rochester, among others, addressed the Minnesota Academy of Ophthalmology and Otolaryngology at a meeting in Rochester, November 13, on abscess of the brain.

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[2] Sjögren, B., and Svedberg, T.: The Molecular Weight of Insulin, J. Am. Chem. Soc. 53:2657 (July) 1931.

MISSOURI

Society Celebrates Golden Jubilee.—The fiftieth anniversary of the St. Louis Medical Society was observed at a meeting, November 24. The program included addresses by Alphonse M. Schwitalla, S.J., Ph.D., dean, St. Louis University School of Medicine, on "Men in Medicine"; Dr. Robert J. Terry, professor of anatomy, Washington University School of Medicine, "Contributors to Medicine," and Dr. Amand N. Ravold, "Brief Sketches of a Few St. Louis Physicians." Special recognition was given to the fifty years or more spent in the practice of medicine by the following physicians: Drs. Ravold, Max C. Starkloff, Carl Barck, James A. Dickson, Willis Hall, Louis Hauck, Harvey G. Mudd and Henry L. Wolfner, St. Louis; Eugene F. Hauck, Clayton, and Henry J. Harnisch, Flagstaff, Ariz. With the exception of Dr. Starkloff, who was ill, all were present. Seven of the physicians are graduates of the St. Louis Medical College, now known as Washington University School of Medicine. Entertainment included an informal reception, bridge, refreshments and dancing.

Society News.—At a meeting of the St. Louis Medical Society, November 6, Dr. Francis L. Reder was elected president and Dr. Alvin H. Diehr, secretary. Dr. Amalie M. Napier was elected president and Dr. Emma Phelan, secretary of the Women Members of the St. Louis Medical Society at a meeting, November 3.——The Jackson County Medical Society, Kansas City, was addressed, November 24, by Drs. Samuel H. Snider on "Bronchial Function in Pulmonary Tuberculosis"; Ralph E. Emerson Duncan, "Use of Oxygen as a Therapeutic Agent," and Harvey P. Boughnou, "Atelectasis versus Pneumonia."——Dr. Russell M. Wilder, Rochester, Minn., addressed the Kansas City Academy of Medicine, November 20, on "Diseases of the Parathyroid."——A symposium on the diagnosis of diseases and abnormalities of the gastro-intestinal tract featured a joint meeting of the Radiological Society of North America and the St. Louis Medical Society, December 1; the speakers were Drs. Thomas A. Groover and Alexander B. Moore, Washington, D. C.; Henry K. Pancoast, Philadelphia; Byrl R. Kirklin and Harry M. Weber, Rochester, Minn.; John L. Kantor, New York, and Horace W. Soper and Evarts A. Graham, St. Louis. The two societies were guests of the St. Louis Roentgen Society at a luncheon.——Dr. Leo G. Rigler, Minneapolis, addressed the St. Louis Trudeau Club, December 3, on "Roentgen-Ray Observations on Free Pleural Effusion," and Dr. Louis H. Clerf, Philadelphia, "Bronchoscopic Observations in Tuberculosis."

MONTANA

Society News.—The Mount Powell Medical Society recently sponsored the first public meeting devoted to cancer that was ever held in Montana at Anaconda. More than 250 persons were in attendance. Dr. William F. Cogswell, secretary of the state board of health, spoke, and the Lewis cancer film was shown.

NEW YORK

Meeting of Laboratory Workers.—The New York State Association of Public Health Laboratories held its autumn meeting in Albany, November 6. Guest speakers were Philip B. Hadley, Ph.D., Ann Arbor, Mich., on "Microbic Dissociation in Relation to Medical Bacteriology"; Dr. Fred W. Stewart, New York, "Aspiration Diagnosis of Tumors," and Chester W. Emmons, Ph.D., New York, "Variations in the Ringworm Fungi." Round table discussions were held relating to regulation of human blood donors and to isolation and identification of meningococci in the spinal fluid from cases of meningitis. In this connection the state laboratory has asked physicians to send either transplants of cultures of meningococci or specimens of spinal fluid for use in studies now in progress on the production of antimeningococcus serum. Dr. George M. Mackenzie, Cooperstown, is president of the laboratory association.

New York City

Third Harvey Lecture.—William H. Taliaferro, Ph.D., professor of parasitology, University of Chicago, will deliver the third Harvey Society Lecture at the New York Academy of Medicine, December 17, on "Infection and Resistance to the Blood-Inhabiting Protozoa."

Society News.—Dr. Udo J. Wile, Ann Arbor, Mich., addressed the New York Academy of Medicine, December 3, on "Cutaneous Manifestations of Systemic Disease."——Dr. Harold E. B. Pardee addressed the Medical Society of the County of Queens, November 24, on "Diagnosis and Treatment of Coronary Arteriosclerosis." Dr. Frank C. Yeomans addressed the society, December 4, on diagnosis in proctology.——Drs. Norman E. Titus and George C. Andrews, Jr., addressed the Yorkville Medical Society, November 16, on "Medical Diathermy" and "Physical Therapy in Dermatology."

Exhibit on Pure Air and Clean Streets.—To impress on the public mind the menace to health of impure air and dusty, cluttered streets, the New York Academy of Medicine has arranged an exhibit to open January 12 and continue for eight days. It will consist of scientific instruments of precision in measuring contamination, models of modern street cleaning apparatus, stoking devices, ventilating machines and motion pictures depicting modern methods, in addition to charts, graphs and photographs. The exhibit is to be held under the auspices of the academy's committee of public health relations and the committee of twenty on outdoor cleanliness.

Hospital Opens Unit for Middle Man.—An experiment in the provision of hospital and nursing care for patients of moderate means was launched by Mount Sinai Hospital, November 18, with the opening of a new twelve-story building for this service. Three departures from the usual hospital practice will be instituted, the hospital has announced. These are innovations in the construction of the building, group nursing and voluntary action of the medical staff in setting a definite limitation on the fees to be charged by surgeons and attending physicians. The expense of the new service will include, for bed accommodations, $35 per week; special group or cooperative nursing, if desired, $45 per week and the fees of the medical staff restricted to a similar proportion. In the new hospital, which will accommodate 156 patients, rooms are arranged in units of two, each containing four beds in cubicles, with a nurse's substation between. Quiet rooms are provided for patients who are very ill. Lockers are used for individual patients and a built-in closet for nursing supplies. The new building is constructed of brick and limestone to harmonize with the other Mount Sinai buildings and occupies the entire Fifth Avenue frontage between One Hundred and First and One Hundred and Second streets. It cost approximately $1,250,000. One floor will house the newly organized consultation service for patients of moderate means (The Journal, July 25, p. 255).

OKLAHOMA

Personal.—Dr. Wann Langston, Oklahoma City, has resigned as superintendent of the University Hospital to become professor of clinical medicine in the University of Oklahoma Medical School.——Dr. Thomas W. Stallings, Tulsa, has been appointed health officer of Tulsa County, succeeding Dr. Bernard L. Branley.

Medical Films.—The Oklahoma State Medical Association has purchased two films, one on the application of forceps and one on eclampsia, for circulation among the county societies. The films are kept and serviced by the extension department of the University of Oklahoma, Norman. County societies are required to see that they are handled only by qualified operators and to pay the expenses of transportation to and from Norman.

Society News.—Drs. Leander A. Riely and John E. Heatley, Oklahoma City, addressed the Osage County Medical Society, recently, on "Clinical Aspects of Gallbladder Disease" and "X-Ray Diagnosis of Gallbladder Disease," respectively.——Among physicians who addressed the annual meeting of the Oklahoma State Hospital Association, Oklahoma City, December 2-3, were Drs. Talbert B. Hinson, Enid, "Hospital Rates"; Frank H. McGregor, Mangum, "Effects of the Present Economic Condition on Hospital Operation"; Berry H. Burnett, Duncan, "Hospital Relationship to Practitioners of Medicine," and D. B. Collins, Waurika, "The Problem of the Ever-Increasing Automobile Accidents."

PENNSYLVANIA

Society News.—Drs. John Sturgeon and Ralph P. Beatty discussed "Pyelitis in Infancy and Childhood" from the points of view of the pediatrician and urologist, respectively, before the Fayette County Medical Society, Uniontown, December 3.——Dr. Thomas A. Shallow, Philadelphia, addressed the Montgomery County Medical Society, Norristown, December 9, on intestinal obstruction.——Dr. Ludvig Hektoen, Chicago, delivered a lecture entitled "What About Scarlet Fever?" at the Western Pennsylvania Hospital, December 9.

Government Services

Army Personals

Major George E. Hesner, relieved at Alcatraz, Calif., and ordered to duty in the Philippine Department; Capt. John P. Russell, San Francisco, for the convenience of the government, proceeded to his home about October 31 to await retirement; Major John M. Hewitt, having attained the age of 64 years, September 25, his retirement from active service by direction of the President is announced; Major Max R. Stockton, on completion of present tour of foreign service, is assigned to duty at the Army Medical Center, Washington, D. C.; Major George W. Reyer, assigned at Fort Bragg, N. C., effective on completion of present tour of foreign service in China; Capt. George P. Chase, relieved at San Francisco and assigned to duty in the Hawaiian Department; Major Clarence M. Reddig, relieved at Washington, D. C., and ordered to duty in the Panama Canal Department; Major William M. White, relieved at Fort Sam Houston and ordered to duty in the Panama Canal Department; Major Oscar T. Kirksey, relieved at Fort Banks, Massachusetts, and ordered to duty in the Philippine Department; Major Meredith R. Johnston, relieved at Panama Canal, C. Z., and ordered to duty at Letterman General Hospital, San Francisco; Capt. James H. Turner, relieved at Fort Sam Houston and ordered to duty in the Panama Canal Department; Capt. Silas B. Hays, relieved at Letterman General Hospital, Presidio of San Francisco, and assigned to duty in Honolulu; Col. Frank W. Weed, relieved at Boston, and assigned to duty in the Philippine Department; Major Peter D. MacNaughton, having been found by an army retiring board incapacitated for active service on account of disability incident thereto, and such finding having been approved by the President, his retirement is announced; Capt. Paul Hayes, relieved at Fort Sheridan, Illinois, and ordered to duty in the Philippine Department.

Changes in Veterans' Administration

The November *Medical Bulletin* of the Veterans' Administration notes the following recent changes in medical personnel, among others:

HOSPITALS

Dr. Leonard M. Brown, from Bronx, N. Y., to St. Cloud, Minn.
Dr. James H. Chapple, from Sheridan, Wyo., to Hines, Ill.
Dr. Compton N. Crook, from Tucson, Ariz., to Outwood, Ky.
Dr. Sherwood Dix, from Bronx, N. Y., to Northport, L. I.
Dr. James H. Dyer, from Lake City, Fla., to Muskogee, Okla.
Dr. William A. Jones, appointed at Palo Alto, Calif.
Dr. Samuel Luber, resigned at Lexington, Ky.
Dr. Willis E. Manney, detailed to Gulfport, Miss.
Dr. Emanuel Messinger, from Northport to Lyons, N. J.
Dr. Asa L. Myers, from Chillicothe, Ohio, to Washington, D. C.
Dr. Luther E. Nichols, from Outwood, Ky., to Tucson, Ariz.
Dr. Tracy C. Owens, permanently assigned at Chillicothe, Ohio.
Dr. Spiro Sargentich, from American Lake, Wash., to central office.
Dr. Frank R. Sedgley, from Minneapolis to Hines, Ill.
Dr. Ashby Steele, from Bedford, Mass., to Lexington.
Dr. Miguel Steinberg, from Bronx, N. Y., to Augusta, Ga.
Dr. Claude A. Thompson, from Muskogee, Okla., to Kansas City.
Dr. John A. Thurston, Jr., from Kansas City to Lake City, Fla.
Dr. Antonino Triolo, from Bronx to Northport.
Dr. Frederick L. Wright, from Palo Alto to American Lake.

REGIONAL OFFICES

Dr. Harold T. Allison, resigned at Scranton, Pa.
Dr. William J. Burdashaw, resigned at New York.
Dr. Samuel C. Kahlstrom, appointed at Cincinnati.
Dr. Frank M. Shafer, from National Military Home, Dayton, Ohio, to National Military Home, Hampton, Va.
Dr. Dana P. Stearns, appointed at Richmond, Va.
Dr. Ralph E. Stevens, resigned at Jacksonville, Fla.

Change of Station in the Navy

Lieut. Comdr. William B. Hetfield from the U. S. S. *Medusa* to the marine corps base, San Diego, Calif.; Lieut. Cyrus C. Brown from the naval hospital, San Diego, to the U. S. S. *Rigel;* Lieut. Comdr. Herbert L. Shinn from the Garde de Haiti, Port au Prince, Haiti, to the navy yard, Washington, D. C.; Lieut. Walter G. Kilbury, from naval hospital, League Island, Philadelphia, to Nicaraguan National Guard Detachment; Lieut. George F. Blodgett from naval hospital, New York, to naval station, Tutuila, Samoa; Lieut. Walter L. Bach, from Guardia Nacional, Nicaragua, to recruiting ship, New York; the resignations of Lieuts. Eric D. Pearson and David M. Segrest have been accepted, effective November 5 and 21, respectively; Lieut. Clyde M. Longstreth's resignation has been accepted, effective February 28.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 14, 1931.

The Increasing Importance of Blood Transfusion

In view of the increasing importance of blood transfusion, the Medical Research Council and the British Red Cross Society have appointed Dr. H. F. Brewer, senior demonstrator of pathology, St. Bartholomew's Hospital, as medical officer to the Blood Transfusion Service organized by the Red Cross. He will supervise the examination of transfusion volunteers and the collation of information on the effect of blood transfusion on donors, and he will carry out research into blood groupings, so that the service can keep abreast of the latest developments in surgery and hematology. Laboratory facilities are being provided by St. Bartholomew's Hospital. Since it was begun in 1921, the Red Cross Blood Transfusion Service has grown steadily. Last year, 1,627 transfusions were carried out, as against 1,333 in 1929. For the first nine months of this year, the number was 1,502. This rise is all the more significant when it is remembered that the success of the liver treatment of pernicious anemia has often obviated the necessity for successive transfusions. The membership of the service is now over 1,100, of whom about a fifth are women. More than a third of the members belong to the Rover Scouts, but almost every social service organization is represented on the service's list of volunteers. It was originally anticipated that a few hundred donors would be ample to meet the needs of all the London hospitals, but it is now found that at least 2,000 are required. The operation is neither painful nor in the least harmful to the donor, who frequently benefits by it. In most cases, if called on in the daytime, he returns to work within an hour. All expenses, including fares, telephone calls and time lost from work, are immediately refunded.

Radium Treatment in the Municipal Hospitals

The importance and advancing standard of the London municipal hospitals, which are quite different from the voluntary hospitals, has been shown in previous letters to THE JOURNAL. The Central Public Health Committee of the London County Council, which now controls them all, has had under consideration the advisability of developing radium treatment. The conclusion reached is that it is now so available in the council's hospitals that no additional facilities are required for the present. The committee has decided that at the most important unit, the Lambeth Hospital, where the treatment of cancer by radium and low voltage roentgen rays is given, the medical officer should possess highly specialized knowledge and skill. His position will be designated "whole-time surgical specialist" and his salary will be $6,250, rising by increments to $7,500 a year.

Psychiatric Clinics at the Municipal Hospitals

Increased attention is being given in this country to functional nervous diseases. The Maudsley Hospital in southeast London was endowed by the well known psychiatrist of that name and was organized by the London County council on the lines of the combined neurologic and psychiatric clinics of the continent and of America. It represented the first provision of the kind by a public body in this country. To increase accessibility of psychiatric diagnosis and treatment, the council has now established psychiatric clinics at each of the three municipal general hospitals north of the Thames: Mile End Hospital, St. Mary's, Islington, and St. Charles's Hospital, Hammersmith. The Maudsley Hospital has a complete staff proposals for throwing open to the outside air whole portions of class rooms and for admission of more sunlight than was formerly deemed necessary.

PARIS

(From Our Regular Correspondent)

Nov. 4, 1931.

The Congress of Pediatricians

The seventh Congrès des pédiatres de langue française was held recently in Strasbourg, under the chairmanship of Professor Rohmer. The first topic on the program was "Alimentary Fevers in Infants." Professor Schaeffer considered the various theories advanced in explanation of these fevers. He regards as the true cause the increase of the metabolism of substances that fix water, and more particularly the proteins. He maintains that there is no alimentary fever without absolute or relative dehydration. It is possible that, as a result of dehydration, there develops an action of poisons affecting the regulatory nerve centers. With a diet rich in albuminoids, such as dry milk, the combustion of proteins liberates less water than the combustion of carbohydrates. The heat produced is greater and is eliminated through perspiration, which creates a need for water. At the same time, these proteins leave a large quantity of urea, which requires a heavy dilution for its renal elimination. Dried human milk produces less harmful effects than skimmed and dried cow's milk because it furnishes fewer proteins. During the discussion that followed, Coréan and Vallette of Strasbourg expressed the view that in the mechanism of alimentary fever not only the excess of proteins but also the excess of sodium chloride played a part. René Mathieu and Jean Chabrun considered in turn the various foods that may provoke fever in the infant: dry milk, buttermilk, condensed milk, ordinary milk whey, and sweetened dry milk.

The second topic concerned cerebral tumors in children. In a comprehensive paper presented by Mr. Heuyer and Mlle. Voigt, the clinical signs of such tumors were considered in detail: eye disorders, symptoms of paralysis or convulsions, modifications of tonus, headache, and changes of the cerebrospinal fluid. For the diagnosis, two signs are essential: choked disk and positive roentgenographic observations. The next step is to locate the tumor, which is often difficult in children and requires the use of ventriculography. The surgical treatment of these tumors was discussed by Clovis Vincent, David and Puech, who described their operative technic and the results secured by the surgical treatment of craniopharyngiomas (tumors developing from the remnant tissues of Rathke's pouch). An attempt should be made to extirpate the cystic pocket in toto, although that is often impossible. The statistics of their personal cases reveal a mortality of 25 per cent for this delicate operation.

The third topic, "The Concealed and Latent Types of Avitaminoses in Infants and the Causes of Their Appearance," was presented by Mr. Bertoye of Lyons. Among the causes he mentioned were defective diet, favorable terrane, the early age of the patient, and the activity of growth. Scurvy, beriberi, xerophthalmia and rickets never appear suddenly but are preceded by unobtrusive prodromal symptoms, which the speaker described with the greatest detail. He then reviewed the modes of treatment and the foods that may have deficient vitamins; also the medicaments (viosterol) and the physical agents (ultraviolet rays).

An International Council of Scientific Societies

During the period immediately following the war, the scientists of the allied countries created an organization called Conseil international des recherches scientifiques, the seat of which was at Brussels. Under the chairmanship of Mr. Emile Picard, the council developed some activity, but, with the return of peace, it was impossible to maintain its exclusive character. It became transformed, and simultaneously with Mr. Picard's communication to the Academy of Sciences stating that fact, he resigned as the president. The new organization, which will be called "Conseil international des unions scientifiques," will constitute a federation of the numerous international societies that specialize in various researches. Its chief purpose will be to appoint joint commissions that will pave the way for understandings between the various countries with respect to researches of common interest. The president is Professor Hale, astronomer at the Mount Wilson observatory, California, and one of the two vice presidents is General Ferrié, member of the Academy of Sciences in Paris.

Tubercle Bacilli in Tuberculous Pleural Effusions

Search for tubercle bacilli in pleural effusions has given heretofore such uncertain results that most microbiologists have become discouraged and have finally been inclined to admit that the fluid of these effusions exerts a lysing action on the bacillus. Karwacki, using ordinary culture mediums, succeeded in finding tubercle bacilli only three times, although he examined 33 liters of fluid. Schlossmann succeeded a little better by using the Petron method. Professor Bezançon, in collaboration with his assistant Mr. E. Buc, has recently solved the problem. He observed that the pleural fluid immediately modified its hydrogen ion concentration through loss of carbon dioxide. It is therefore necessary to acidify slightly the culture medium. The medium he uses is composed of distilled water, to which are added 2 per cent of peptone, 5 per cent of glycerin, and 1 per cent of monobasic potassium phosphate and sodium phosphate. Several tubes are filled with from 2 to 3 cm. in height and a few filaments of cotton are added. The contents are sterilized at a temperature of from 110 to 115 C., and an equal quantity of pleural fluid is added. The tubes are well stoppered and are kept in a bath at an exact temperature (between 37 and 38 C.). The colonies appear in from three to four weeks, either on the threads of cotton, which were added to serve as their support, or at the bottom of the tube. They increase in volume in the form of arborescent prolongations, especially in the more aerated region of the surface. The bacilli appear in countless numbers, and presenting their usual characters as to form, acidoresistance and inoculability in the guinea-pig. The positive results are virtually constant, especially if one considers the pleural exudates of artificial pneumothorax.

Dr. Chompret Honored

The first university chair of stomatology was established in 1844, at the Faculty of Medicine in Budapest. In memory of Professor Arkovy, its most eminent occupant, from the scientific point of view, the Hungarian society of stomatology has created a gold medal to be awarded every three years, by an international committee, to the stomatologist adjudged the most eminent. The medal has just been awarded (for the first time) to Dr. Chompret, stomatologist to the Hôpitaux de Paris, at the Hôpital St. Louis, who will retire at the end of this year from active service. He was the founder and has remained the director of the principal dental school of Paris.

Creation of a Hematologic Society

A new scientific society has been created in Paris: the Société d'hématologie. It numbers 250 charter members—French and foreign. Professor Hayem was chosen honorary president. Professor Chauffard was elected president; Professors Vaquez, Achard and Jolly, vice presidents; Dr. Chevallier, general secretary. The society will meet once a month in a conference room at the Hôpital de l'Hôtel-Dieu and will publish regularly scientific articles submitted by its members.

almost half of them use the written language, while less than one fourth make themselves understood with the aid of signs. The welfare service in aid of persons hard of hearing is of more recent origin. The state has established for their benefit several special schools and continuation schools. The instruction in these schools is given in accordance with the so-called *hörschmethode*, or a suitable combination of hearing and seeing. Recently a special service has been created with a view to protecting deafmutes and persons hard of hearing in court proceedings.

BUCHAREST

(From Our Regular Correspondent)

Oct. 17, 1931.

The New Law and the Adulteration of Food

Regulations in the new health law embrace all kinds of foodstuffs. The law forbids the sale or manufacture of decayed or harmful foods and beverages. Food articles must be named after the raw substance used in their manufacture, and this name must be used not only in advertisements, samples and invoices but also on the containers. It is strictly forbidden to use names which do not correspond with the true substance of the food or beverage.

Drinking water served in cafés and restaurants must be light, colorless, free from odor, and devoid of any by-taste. Its temperature must not exceed 15 C. (59 F.) in any part of the year. Besides this, it has to contain carbon dioxide. Soda water and lemonade factories can be established only with the authorization of the magistrate. Especial authorization is needed for making portable lemonade and other refreshing beverages. In the manufacture of lemonade, only well refined sugar may be used. Syrups made of sugar must consist of two parts of sugar and one part of boiled water.

Artificial mineral waters must contain the same constituents as the respective natural water: carbon dioxide may be added. Artificial mineral waters should be prepared only according to the formulas approved by the ministry of health. Only table mineral waters may be manufactured, while medicamentous, that is curative, waters must not be made artificially, excepting bitter waters.

For the cooling of foods and beverages, natural and artificial ice may be used. Artificial ice must be prepared from pure drinking water. Natural ice can be used for cooling only after a preliminary water analysis. Artificial ice may be in direct touch with the food articles, while, if natural ice is used, the articles have to be wrapped in some water-proof covering.

Milk can be sold only by licensed dealers. The license is issued by the veterinary section of the village magistrate's office to those who milk their own cows. Milk can be sold in aluminum or zinc containers.

As to yeast, only spirit or beer yeast can be sold to the public. The blending of the two kinds is prohibited. On the wrapper a label must be fixed, stating whether the product contains beer yeast or spirit yeast.

For preserving meat, the only method permissible is refrigeration. It is forbidden to sell the meat of sick animals or to use decayed vegetables for making preserves or for coloring them, or to use starch in their preparation. As to vinegar, the lowest acetic acid content allowed is 3, and the highest, 15 per cent. Vinegar essence must contain 80 per cent acetic acid.

Merchants unwittingly selling adulterated or impure foods or beverages are liable to a fine of from 1,000 to 3,000 lei, while those who sell such articles knowingly are fined from 2,000 to 10,000 lei. For a second offense the fine is doubled. If the adulteration was committed by one who brought the article into traffic, the fine is from 5,000 to 10,000 lei, and in case of a second offense it is double, with imprisonment from one to three months. In case adulterated or decayed or impure food articles cause death, a fine of from 10,000 to 50,000 lei is imposed, with imprisonment from one to three years, independently from the indemnity fixed by the civil court. Adulteration of milk involves a fine of from 2,000 to 5,000 lei.

According to the law, these regulations are enforced by the public health inspectors, the county physicians-in-chief, medical officers of cities and towns, and the chiefs of the state laboratories. The chiefs of custom houses are obliged to control all food articles imported from abroad and have to send samples for analysis to the laboratory of the ministry of health.

A special section of the law deals with the requirements in regard to cleanliness and hygiene in restaurants, cafés and all localities where foods are served. The agents of the public health office in towns and cities have to visit all such places twice a year. The new law is already in force.

Bachelor and Spinster Tax in Rumania

In view of the great infant mortality rate and the great spread of the so-called social diseases, the Rumanian government felt impelled to draft a bill taxing all bachelors and spinsters. According to the first chapter of the law, the taxes to be paid by bachelors and spinsters will be turned over for the subsidizing of hospitals, dispensaries and other social institutes. The second chapter asserts that the terms bachelor and spinster apply to all single men and women between the ages of 30 and 65. Exemption is made in the case of clergymen, monks and those who are not permitted by the civilian law to marry. The tax is fairly low: up to 35, the annual fine is 200 lei ($1.22) up to 50, it is 500 lei ($3.05) and beyond 50, the fee is 300 lei ($1.83). The last chapter of the law deals with the fines to be imposed on those who want to evade the payment of these taxes under some false pretexts. An interesting item of this law is that in factories, warehouses and other establishments the employer is responsible for the notification of his bachelor and spinster employees.

Trachoma in Rumania

In the prophylaxis and treatment of trachoma, the army did great service in prewar times. The examination of the eyes of recruits resulted in the discovery of trachoma cases. If a lad was found to have trachoma he was sent to a trachoma hospital, where he was kept as long as the condition was infectious. A physician experienced in the treatment of trachoma was sent to the district from which the lad came, and all the inhabitants there were examined. Those suffering from trachoma were sent to a hospital or, if this was impossible, put under treatment by the village doctor. If the number of trachoma patients in a district was too great, a trachoma specialist was entrusted with the treatment. The lads with trachoma were admitted into the army only after one year's absolute freedom from any symptoms of trachoma. In this manner, the number of trachoma cases was kept at a low level prior to the war. During war times, the invasion of foreign troops, the immigration of Russians, the annexation of Bessarabia, the return of war prisoners and the return of imperfectly healed soldiers from the field added much to the spread of trachoma.

In 1921, Dr. V. Cerkez examined all the children in an orphanage in Jassy and found that 47 per cent were trachomatous. In a school for girls in Jassy, 6 per cent of the children suffered from trachoma. In the outpatient department of the Jassy eye hospital, 580 trachoma patients were treated in 1928, 1929 and 1930, representing 3.5 per cent of all patients. Follicular conjunctivitis, though difficult to distinguish from trachoma, remains a well characterized and outlined pathologic entity; only 5 per cent of the follicular cases become in time trachomatous. In order to prevent relapses, complete cures must be insisted on: after an operation, the upper eyelid must not be turned up sooner than the eighth day. In respect to prophylaxis in Rumania, Cerkez urges the legislative carrying out of early more intensive cultivation. Malarial infection has gradually diminished and conditions today are much improved. The improvement cannot be ascribed to a diminution in the number of Anopheles, as these are present in great numbers in the rice regions of Novara. Of 100 specimens, 94 are Anopheles claviger or Anopheles maculipennis, 4 are Anopheles superpictus, and 2 are Anopheles pseudopictus. No specimens of Anopheles bifurcatus were found. Anophelism sine malaria may be ascribed, in all probability, to the fact that Anopheles of the rice fields, owing to some organic transformation, has lost to a great extent its susceptibility to malarial infection on being exposed to the malarigenic hematozoon through biting a person harboring that organism. Experimentally, it proved impossible to infect the mosquitoes of the Novara rice fields with malaria through contact with a malarial patient.

A School for Ametropic Pupils

In Brescia there has been functioning for two years a special school for ametropic pupils, to which are admitted children, belonging to the second to fifth elementary grade, who are affected with serious myopia, hypermetropia, astigmatism, strabismus, or sequels of diseases of the anterior segment of the bulb or of the deep membranes, which reduce the vision to less than 3/10. The children supplied with glasses give immediate evidence of improved vision, applying themselves to their studies with less fatigue and greater profit, the vomiting spells, the headaches and the other disturbances produced by asthenopia being eliminated. On an average, visual acuity in the children supplied with lenses increased from 3/10 up to 7/10. Another advantage was the recovery from blepharoconjunctivitis due to defects of vision. A third advantage is the treatment of strabismus and of amblyopia ex anopsia by means of exercises. Increases of visual acuity amounting to 6/10 were observed.

Dangers of Malaria Treatment of Dementia Paralytica

Addressing the Accademia delle scienze medico-chirurgiche of Naples, Professor Romano described the possible dangers associated with the treatment of degeneration of the neuraxis. The untoward effects that may arise are not to be ascribed solely to the reduced organic resistance of the patient or to an error in the choice of the strain of malaria but chiefly to a third cause more important than the two preceding. This consists in the fact that, as a result of inoculation with asexual malaria micro-organisms, with an incomplete biologic cycle and with a tendency to die or to be destroyed, malaria is not produced in the organism but a status malaricus. The toxemia induces in the organism already weakened disease symptoms that are not always foreseeable or controllable. In concluding, Professor Romano expressed the view that in a patient treated by malarialization there may develop a true toxinfection with a special type of septicemia. And since it is held that the mechanism of this therapeutic process is based on the action of febrile heat and on the destruction of neurotropic organisms, the speaker suggests that physical means be adopted for that purpose, as, for example, diathermy.

In the discussion following Professor Romano's paper, Professor Colucci pointed out that by attenuating the attacks of malaria with small doses of quinine, the dangers of malariotherapy are much lessened. He considered the attitude of Professor Romano pessimistic and remarked that the beneficent effects of malariotherapy do not lie solely in the elevation of temperature. Castronuovo held that by choosing carefully the strain of malaria to be inoculated one can always regulate the course of the malaria and check it when it appears desirable. Malariotherapy exerts furthermore a genuine immunizing biologic stimulus of value for direct defense against syphilitic spirochetosis. Seiuti considered malarialization the best method for the treatment of dementia paralytica provided it is applied early. But there are other methods that may prove efficacious, such as sulphotherapy and a combination of arsphenaminotherapy and reinjection of the patient's own spinal fluid. It is indispensable that pyretotherapy be followed by an energetic specific antisyphilitic treatment.

Professor Romano in reply reaffirmed his view that inoculation with atypical malaria during the incompleted asexual cycle (which he terms "wagnerism") is different from true malarialization, which must be the result of biologically perfect malarial inoculation. He contends that in some cases wagnerism may be more harmful than malarialization itself.

MADRID

(From Our Regular Correspondent)

Nov. 6, 1931.

Early References to the Circulation of the Blood

Dr. N. Mariscal recently lectured before the Academia Nacional de Medicina of Madrid on the history of medical discoveries, with especial reference to the share of the Spanish medical profession in the discovery of the circulation of the blood. The speaker made the following statements: In "De Trinitatis erroribus," the first book of Michael Servetus (Miguel Servede), which was published in Basel in 1531, there appears a description of the circulation. "Christianismi restitutio," written by the same author and published in 1553, is a compilation of his previous books. There is a popular belief that the books of Servetus were destroyed, only two copies of "Christianismi restitutio" being saved, one of which is in Vienna and the other, partly burned, in Paris. These are not the facts, however, since the Biblioteca Nacional of Madrid obtained from a Quaker several copies of his works, among which were two copies of "Christianismi restitutio" and one copy of "De Trinitatis erroribus." Matteo Realdo Colombo, Andrea Cesalpino, Carlo Ruini and Eustachius Rúdius probably obtained their ideas on the circulation from Servetus. Baron Leibnitz gave Servetus (whom he termed "the famous anti-Trinitarian heretic doomed by Calvin in Geneva") credit for having been the discoverer of circulation. Andrés Laguna, in 1535, published in Paris his so-called anatomic method in which, while speaking of the contractions of the heart, he said: "This is a movement which is a property of the heart without any connection with the nervous system, since, if the nerves and the arteries originating in the brain are ligated, the systole and the dyastole continue." In 1542, Luis Lobera de Avila wrote: "The heart has two ventricles, right and left. In the right ventricle there enters a large vein (the vena cava), which brings the blood to the heart and originates a large vessel (the pulmonary artery), which carries the blood from the heart to the lungs. In the left ventricle there enters a large vessel (the pulmonary vein), which brings blood to the heart and originates a large artery (the aorta), which carries the blood all over the body." Francisco Matías Marti of Valencia, in 1616, twelve years before Harvey's book appeared, wrote thus: "The heart seems as if it were divided into right and left halves, to each of which an auricle and a ventricle, with alternate movements, correspond. The first movement of the heart originates in the right auricle, which, by means of a contraction, expels the blood which it receives from the vena cava to the right ventricle. The contraction of the ventricle, in turn, forces the blood to the pulmonary artery, from which it goes to the lungs, where it is subject to a process of purification while in contact with the air which is there by inspiration; and, once arterialized, it returns through the pulmonary vein to the left auricle, whence, through the contractions, first of the left auricle and then of the left ventricle, it is forced to the aorta, from which all the parts of the body are supplied through many branches. Then the blood returns through the veins again to the vena cava and to the right auricle in a revolving uninterrupted movement of the blood."

Leonard Johnathan Hensler, Carrollton, Ill.; Vanderbilt University School of Medicine, Nashville, Tenn., 1908; member of the Illinois State Medical Society; served during the World War; aged 46; died, November 7, in St. Anthony's Hospital, St. Louis, of agranulocytosis.

Benjamin C. Logan ⊕ Morrilton, Ark.; Louisville (Ky.) Medical College, 1902; past president and secretary of the Logan County Medical Society; formerly county and city health officer; on the staff of St. Anthony's Hospital; aged 56; died, October 31, of heart block.

Reuben Nathaniel Palmer ⊕ Kenyon, Minn.; University of Minnesota Medical School, Minneapolis, 1926; formerly secretary of the Houston-Fillmore Counties Medical Society; served during the World War; aged 38; died, November 3, of heart disease.

James P. Tucker, Galveston, Texas; Texas Medical College and Hospital, Galveston, 1878; University of Louisville (Ky.) School of Medicine, 1885; aged 78; died, October 25, in the John Sealy Hospital, of acute pyelonephritis, cystitis and arteriosclerosis.

Cornelius H. Myers, South Bend, Ind.; Hahnemann Medical College and Hospital, Chicago, 1877; member of the Indiana State Medical Association; aged 79; died, October 31, in the Epworth Hospital, of injuries received when he was struck by an automobile.

John Newton Killough, Birmingham, Ala.; Kentucky School of Medicine, Louisville, 1887; member of the Medical Association of the State of Alabama; visiting physician to the Alabama Boys' Industrial School; aged 66; died, November 2, of carcinoma.

George W. Steward, Jerusalem, Ohio (licensed, Ohio, 1896); president of the Monroe County Medical Society; formerly member of the state legislature and member of the county board of health; aged 83; died, in November, of cerebral hemorrhage.

Robert Adoniram Segrest, Port Gibson, Miss.; Memphis (Tenn.) Hospital Medical College, 1903; member of the Mississippi State Medical Association; aged 51; died, October 31, in the Jackson (Miss.) Hospital, of carcinoma of the right lung.

William Albert Galloway, Xenia, Ohio; Medical College of Ohio, Cincinnati, 1890; member of the Ohio State Medical Association; on the staff of the Ohio Soldiers and Sailors Orphans Home; aged 71; died, November 7, of heart disease.

Columbus C. Black, Austin, Texas; Missouri Medical College, St. Louis, 1882; member of the State Medical Association of Texas; aged 75; died, August 28, in a local hospital, of hypostatic pneumonia, arteriosclerosis and chronic myocarditis.

John Emison Pack, Georgetown, Ky.; Bellevue Hospital Medical College, New York, 1873; formerly mayor of Georgetown, member of the state legislature, and the county board of health; aged 82; died, October 30, of cerebral hemorrhage.

Thomas Nathaniel Jackson, Jr., Athens, Ga.; Boston University School of Medicine, 1924; on the staffs of the Athens General Hospital and St. Mary's Hospital; aged 34; died, November 8, of myocarditis and pulmonary tuberculosis.

Harry Allan Spangler ⊕ Carlisle, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1892; served during the World War; aged 65; on the staff of the Carlisle Hospital, where he died, November 5, of cerebral hemorrhage.

Samuel L. Rucker, Moneta, Va.; University College of Medicine, Richmond, 1897; member of the Medical Society of Virginia; aged 60; died, October 4, in the Jefferson Hospital, Roanoke, of perforated gastric ileus and peritonitis.

Robert James Gillespie, Salyersville, Ky.; University of Louisville School of Medicine, 1912; director of the health department of Magoffin County; aged 43; died, November 2, in the Paintsville (Ky.) Hospital, of pneumonia.

George Wesley Kester ⊕ Grand Junction, Iowa; Drake University Medical Department, Des Moines, 1895; past president of the Greene County Medical Society; member of the school board; aged 62; died, November 4.

Charles Westlake Hoare, Windsor, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1888; formerly mayor of Walkerville and member of the board of education; aged 68; died, November 10.

Peter Harry Harmann, St. Louis; St. Louis College of Physicians and Surgeons, 1898; Barnes Medical College, St. Louis, 1900; aged 55; died, November 8, in the Missouri Baptist Hospital, of carcinoma of the liver.

Philip R. Cleaver ⊕ Johnstown, Pa.; Medico-Chirurgical College of Philadelphia, 1890; aged 64; on the staff of the Mercy Hospital, where he died, November 5, of embolism, following an operation for gallstones.

Amos F. Hamman ⊕ Long Beach, Calif.; Rush Medical College, Chicago, 1903; served during the World War; on the staff of the Seaside Hospital; aged 57; died, October 28, in Chattanooga, Tenn., of heart disease.

Charles Levin ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1905; on the staff of the Beth David Hospital; aged 53; died, November 8, of chronic valvular heart disease.

David Young, Winnipeg, Manit., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1871; superintendent of the Manitoba Mental Hospital, Selkirk, 1886-1912; aged 84; died, October 16.

John T. Davis, Zanesville, Ohio; Medical College of Ohio, Cincinnati, 1872; member of the Ohio State Medical Association; aged 83; died, November 10, in the Bethesda Hospital, of edema of the lungs.

William George Edward Flanders, Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1888; aged 65; died, November 4, of arteriosclerosis, chronic nephritis and diabetes mellitus.

William D. Wheless, San Antonio, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1900; on the staff of the San Antonio State Hospital; aged 58; died, November 1.

Timothy O'Brien, Wahpeton, N. D.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1884; member of the North Dakota State Medical Association; aged 69; died, November 7.

Anthony J. Berresheim, Louisville, Ky.; Kentucky School of Medicine, Louisville, 1906; member of the Kentucky State Medical Association; aged 50; died, November 19, of encephalitis.

Daniel D. Murray ⊕ Duluth, Minn.; Albany (N. Y.) Medical College, 1881; formerly city health commissioner; aged 72; died, November 6, of coronary thrombosis and arteriosclerosis.

George Frederic Hunter Bartlett, Buffalo; University of Buffalo School of Medicine, 1883; aged 75; died, November 8, of carcinoma of the esophagus, arteriosclerosis and arthritis deformans.

John S. Bentley, St. John, N. B., Canada; McGill University Faculty of Medicine, Montreal, Que., 1904; for many years on the staff of St. John General Hospital; aged 53; died recently.

Edwin Putnam Gleason, Brockton, Mass.; Harvard University Medical School, Boston, 1892; aged 65; died, November 9, in the Brockton Hospital, of hypertension and heart disease.

James D. Scott, Holdenville, Okla.; Missouri Medical College, St. Louis, 1897; member of the Oklahoma State Medical Association; aged 59; died, October 31, of diabetes mellitus.

Frederick Roberts, Lake City, Ark.; University of Tennessee Medical Department, Nashville, 1907; aged 6[illegible]; died, October 17, in Brookland, of chronic nephritis and paralysis.

Max Mayo Miller ⊕ Arkansas City, Kan.; Northwestern University Medical School, Chicago, 1918; on the staff of the Mercy Hospital; aged 41; died, November 6, of heart disease.

George Neves, Colony, Okla.; Tulane University of Louisiana Medical Department, New Orleans, 1912; aged 49; died, July 16, in Thibodaux, La., of a self-inflicted bullet wound.

Allen Judd Nossaman ⊕ Pagosa Springs, Colo.; Keokuk (Iowa) Medical College, 1892; aged 64; died, October 9, in the Colorado General Hospital, Denver, of lymphosarcoma.

Benjamin William Dudley, Short Hills, N. J.; Columbia University College of Physicians and Surgeons, New York, 1904; aged 53; died, October 26, of cirrhosis of the liver.

Gilbert James White, Evanston, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; aged 74; died, November 12, in Picton, Ont., Canada, of myocarditis.

Terence Edward Darnelle, Detroit; Medical College of Indiana, Indianapolis, 1892; served during the World War; aged 62; died, November 4, in the Receiving Hospital.

Duncan A. Macdonald, Winnipeg, Manit., Canada; Manitoba Medical College, Winnipeg, 1907; on the staff of the Deer Lodge Hospital, St. James; aged 50; died, October 6.

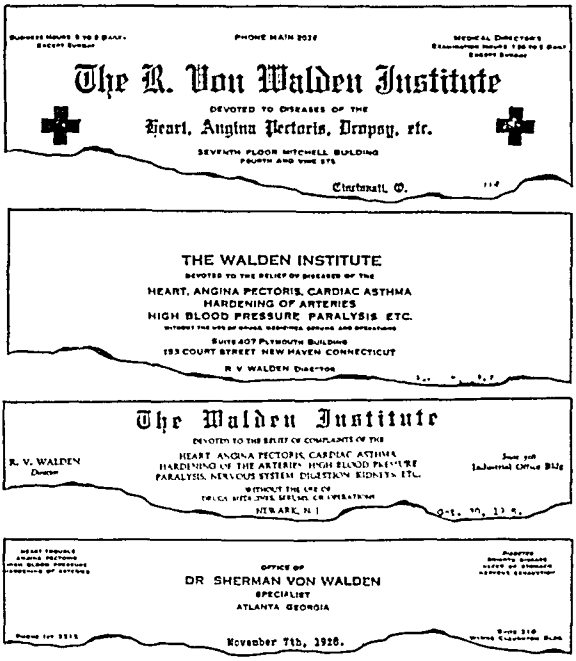
Edwin Fancher, Middletown, N. Y.; Boston University School of Medicine, 1883; member of the Medical Society of the State of New York; aged 71; died, November 22.

Samson George Goode, Sidney, Ohio; Medical Department of the University of the City of New York, 1887; formerly justice of the peace; aged 86; died, October 23.

Other members of von Walden's family that have figured in the newspapers are his wife and two daughters. All three are reported, at different times, as having been arrested for breaches of the peace, while, according to the daily press, Mrs. von Walden has, in addition, been sentenced to jail (execution suspended) for contempt of court. In March of this year (1931), it was reported that Mrs. von Walden, in her suit against Rudolph for alleged failure to pay $12,000 in back alimony, had charged that her husband had transferred some valuable property by warranty deed to two individuals who, in turn, executed a mortgage on the property to one "Charles F. Roberts." Mrs. von Walden is said to have declared that "Charles F. Roberts" is merely an alias adopted by Rudolph von Walden for the purpose of removing the mortgage from the possibility of attachment. In June, 1931, the papers reported that von Walden had entered into a stipulation to pay his former wife $10,500.

"PROFESSOR" RUDOLPH VON WALDEN

So much for the satellites in the von Walden group. The first newspaper record that we have of the elder von Walden's quackery was published in May, 1916. From it one learns that Rudolph was found guilty of practicing medicine without a license at Portsmouth, Ohio, fined $300 and costs, and given a suspended sentence of a year. According to an article that was published in the *Ohio State Medical Journal,* it seems that in December, 1916, Rudolph von Walden went to Portsmouth to attend one Charles Fenstermaker, whose condition Portsmouth physicians had pronounced hopeless. Mr. Fenstermaker died shortly after von Walden had collected $250 from his family. The same medical journal also reported that some time following this episode, full-page advertisements appeared in the *Cosmopolitan* and the *Woman's Home Companion* and a number of southern newspapers, announcing the alleged therapeutic miracles that von Walden's "system" would accomplish.



The R. Von Walden Institute
Devoted to diseases of the
Heart, Angina Pectoris, Dropsy, etc.
Seventh Floor Mitchell Building
Fourth and Vine Sts
Cincinnati, O.

THE WALDEN INSTITUTE
DEVOTED TO THE RELIEF OF DISEASES OF THE
HEART, ANGINA PECTORIS, CARDIAC ASTHMA
HARDENING OF ARTERIES
HIGH BLOOD PRESSURE PARALYSIS ETC.
SUITE 407 PLYMOUTH BUILDING
153 COURT STREET NEW HAVEN CONNECTICUT
R V WALDEN DIRECTOR

The Walden Institute
DEVOTED TO THE RELIEF OF COMPLAINTS OF THE
HEART ANGINA PECTORIS CARDIAC ASTHMA
HARDENING OF THE ARTERIES HIGH BLOOD PRESSURE
PARALYSIS NERVOUS SYSTEM DIGESTION KIDNEYS ETC.
WITHOUT THE USE OF
DRUGS MEDICINES SERUMS OR OPERATIONS
NEWARK, N J
R. V. WALDEN
Director
Industrial Office Bldg

OFFICE OF
DR SHERMAN VON WALDEN
SPECIALIST
ATLANTA GEORGIA
November 7th, 1928.

Some von Walden letterheads (greatly reduced). At the top as used in 1914 in Cincinnati; the New Haven, Conn., letterhead, vintage of 1922; the Newark, N. J., office in 1928 and Sherman's letterhead also in 1928.

In January, 1917, Alabama papers reported that Rudolph von Walden had been arrested in Mobile on the charge of practicing medicine without a license. We have no record of the outcome of this case.

Von Walden's activities were given some further publicity in the October, 1917, issue of the *Journal of the Tennessee State Medical Association,* which published a letter from two reputable physicians recording the case of a Mr. J. W. Kerr, a brother-in-law of one of the physicians. The letter stated that Mr. Kerr, who had had organic heart disease for many years, fell into the hands of Rudolph von Walden, at the time this quack was operating his Cincinnati "institute." Von Walden charged Mr. Kerr $500 in advance and kept him in Cincinnati long enough for the check to go through the clearing house. What von Walden did to Mr. Kerr is not known, but when he sent Mr. Kerr home, he telegraphed to Mrs. Kerr to meet her husband at the train, as he was "not very well." When Mr. Kerr was met at the train by Mrs. Kerr and his family physician, he was unconscious and died three hours later. The physician who was brother-in-law to Mr. Kerr threatened von Walden with legal action if the $500 was not returned to Mrs. Kerr. It was returned.

In March, 1921, Florida papers reported that Rudolph von Walden had been arrested in St. Petersburg. Here, again, von Walden apparently escaped fine or imprisonment, as we find no record of it. In January, 1924, newspapers reported that Rudolph von Walden had been arrested by the Richmond (Va.) police on the charge of practicing medicine without a license. At the same time, the police department of Richmond wrote to the Bureau of Investigation of the American Medical Association for such data as the Bureau had on von Walden. These, of course, were sent. Von Walden was reported held on two charges—that of practicing medicine without a license and that of having illegally in his possession three quarts of whiskey. The Richmond police are reported to have said, at the time, that von Walden evidently had some "influence behind him in the state of Georgia as while in jail [in Richmond] he called some town in Georgia and asked his bankers there to wire to a bank in Richmond, asking them to honor his check for $1,000, which was given to some local attorneys" and that "the Georgia bank immediately wired this information and the check was honored." When von Walden's case was called, the quack was dismissed! According to the newspaper reports, no evidence was produced to show that he practiced medicine and—most delicious of all—the "professor" was able to convince the court that the three quarts of whiskey found in his possession were "being used in connection with his professional work."

In 1930, Rudolph von Walden made a tactical error. He went to Hartford, Conn., to ply his trade, and Hartford has a Better Business Bureau with a live personnel. After prescribing a course of medical treatment for an investigator for the Hartford Better Business Bureau, Rudolph von Walden was arrested on a charge of violating the state healing arts law. On June 3, 1930, von Walden was fined $200 and costs for violation of the state medical practice act. While von Walden gave notice of appeal it was a bluff. He paid the fine and costs.

HOW RUDOLPH WORKS

Von Walden's *modus operandi* has been, in the past, to publish expensive advertisements, many of them occupying full pages of such newspapers as cater to such sources of advertising revenue. Those who wrote to von Walden in answer to the advertisements, received plausible come-on letters with "consultation blanks" common to mail-order quackery. The prospective victim was urged to fill out the blank and return it to von Walden, who would, upon its receipt, send "a written analysis of your symptoms" free of all expense. Von Walden's diagnoses, or as he would call them "analyses," were surprisingly uniform. They smelled of the rubber-stamp. Practically all those that we have seen read:

> "I find upon examination that the origin of your symptoms is in your abdominal organs; your stomach, your liver, your intestines, and also your abdominal circulation. These must be corrected first, before you can get rid of your symptoms."

Curiously enough, this same stock diagnosis—*verbatim et literatim*—is also used by Sherman von Walden. Sherman, it will be remembered, is operating at present from Atlanta, Ga. In 1927, the Atlanta concern was known as the "Walden Institute of Vital Dietetics" with R. von Walden, "Director," and "Dr. Sherman von Walden, Consultee." Later, stationery carried the name "Dr. Sherman von Walden, Specialist in Heart and Arterial Diseases, Suite 310 Mortgage Guaranty Building, Atlanta, Ga."

Rudolph von Walden has, at least on one occasion, used the stool-pigeon method of advertising. Sufferers from "heart

"6.—The Walden Method is not a proper or sure method of treating the diseases and ailments mentioned in Paragraph Two hereof, or any other diseases or ailments.

"7.—The Walden Method has not relieved thousands, or any, patients of their ailments or diseases.

"8.—Ninety-five per cent, or any per cent of fatal heart disease has not been cured or relieved by the Walden Method.

"9.—The Walden Method is not the only sure method of curing or aiding in the cure of the diseases or ailments mentioned in Paragraph Two hereof, nor is it a sure method at all.

"10.—Correct and accurate diagnoses of said ailments or diseases of the human body cannot be made by the methods employed by respondent.

"11.—Many of the purported testimonials referred to in subdivision (c) of Paragraph Two hereof are false and misleading, many were never given and many were induced by purchase and such purchase not disclosed to persons reading the same.

"12.—The diagnoses attempted by the respondent are not within the range of this respondent's methods, skill or information.

"13.—The use of the abbreviation for 'Doctor,' 'Dr.,' as applied to the name of the respondent in the advertising and sale of the 'Walden Method,' as aforesaid, holds out to the public that respondent is a doctor of medicine, when such is not the fact."

Hearings have not yet been held on this case. They will be awaited with interest by those who seek to protect the public from quackery.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIFFERENTIAL DIAGNOSIS OF INTESTINAL WORMS

To the Editor:—I should be pleased to have your assistance in identifying an intestinal worm discovered in the stool of a girl, aged 18 months. The previous history is negative. The child is greatly emaciated, feeble and fretful; the appetite is fair; the digestion, except during brief dentition, has been good. The present illness began nearly three months ago, the chief symptoms being progressive loss of weight and strength, increasing anemia, constant fretting and crying for hours and hours. Slight fever is present most of the time. Urinalysis gives negative results; the hemoglobin is 60 per cent, the stool is well digested but contains many small islands of mucus. The first microscopic examination disclosed ova comparable to hookworm. The first dose of castor oil given after a course of chenopodium oil caused disappearance of these ova. None have *appeared since. In the first specimen and in all subsequent stools* examined, numerous worms have been seen which when magnified 70 diameters appear much like the male hookworm by naked eye; that is, straight or slightly curved, sharp at one end but clubbed at the other. The worms are striated transversely (ringed) for their entire length. They are not visible to the naked eye. Motion has not been observed. The food has been milk, eggs and cereal. No fruit substances such as peach fuzz have been ingested. Slight improvement in the child's condition followed an anthelmintic, but the stool still teems with these apparent worms. Please omit name.

M.D., Oklahoma.

Answer.—There is a question here as to a parasite really being present. It is difficult to diagnose the genera of worms by a written report. The problem of recognition of the parasite (?) present here would be simplified if one knew the residence of this child and also had available a differential blood count, showing the eosinophil percentage. Pathologic intestinal parasites, which by excretion of toxin (?) or by tissue invasion are producing lesions, commonly cause alterations from the normal differential leukocyte formula; the anomaly usually is eosinophilia. With 60 per cent hemoglobin, this child's red cells might be expected to present abnormalities.

Many of the signs and symptoms presented clinically by this child could be ascribed to a dietetic deficiency. Certainly, for an 18 month old girl a diet comprised wholly of milk, eggs and cereal is unbalanced in vitamins. It would be of importance to know what has been the diet prior to the one named. In a previous diet, the "ova" and "worms" described might well be vegetable hairs, fruit fibers or molds. It is difficult to recognize ova or worms accurately after the administration of castor oil; a saline cathartic delivers stools which may be readily examined both macroscopically and microscopically.

If the offending parasite here were hookworm, it is difficult to explain how ova were seen but once, whereas, on all occasions, the stool was rich in "worms." Hookworm-filled stools usually exhibit ova and worms simultaneously, at least at some examinations. Also, it is rare to find stools "teeming with hookworms" without observing mobility in many, especially if warm freshly passed stools are studied on a warmed microscope stage. The inquirer is ambiguous: are the worms invisible to the unaided eye, or is it the striations? Since hookworms vary in length from one-third to one-half inch, it is possible, if the stool is stirred on a black surface, to see them with the unaided eye. Ancylostoma is even longer than hookworm (Necator americanus). Striation is not seen microscopically. The pointed part of the female and the umbrella-like copulatory bursa of the male are characteristics readily identified under the medium powered lens.

The pinworm (Enterobius vermicularis) may be confused with hookworm. It can be seen macroscopically, squirming on fecal masses, since it is approximately half an inch long. Since eggs are deposited as the worm wanders, anal and perineal anal irritation is common and should be looked for, particularly at night. Scratching infects the fingers, produces surface body lesions, and spreads the infestation. The worm is actively motile and not transversely striated.

The roundworm (Ascaris lumbricoides), from one-half to one-fourth inch long and slightly pinkish, is transversely striated but has not a clubbed end as described by the correspondent. Infestation may occur through hogs or through those who come into contact with them and carry the slowly maturing eggs. Constitutional upsets may be severe, because the worm migrates extensively (through the liver, lungs, trachea or appendix). The knobbed ovoid eggs should not readily be confused with the rounded, four-segmented eggs of hookworm. The parasite is motile.

From the foregoing summary it would seem that, of the common worms infesting the alimentary tract of human beings, the correspondent is dealing with a roundworm (Ascaris lumbricoides) or an artefact.

In the circumstances, further observations should be made on foreign substance present in the stool.

Treatment should include a vitamin balanced, adequate ration. "On suspicion," a course or two of thymol may be tried after the patient has been on a fat-free diet for three days.

PREGNANCY IN DOUBLE UTERUS

To the Editor:—Please advise the wisest course to pursue in the following case: One of my patients, a primipara, who is three months pregnant, has a "uterus duplex." The vagina is also divided by a septum. The uterus on the right side is the one pregnant. Shall I let her go to term? Will there not be too much interference at term by the other uterus and the vaginal septum? The husband and wife do not want a cesarean operation performed. The pelvic measurements are normal. The literature available regarding this seems to be scarce. Please omit name.

M.D., Ohio.

Answer.—Uterus didelphys, or double uterus, consists of two distinct uteri, usually of different sizes, each with a separate cervix which communicates with the vagina. In most instances, as in the case cited, the vagina is also double. A review of the literature reveals that, in more than a fourth of all the cases, pregnancy is interrupted before the child is viable. The cause of this may be abnormal implantation of the ovum due to the uterine malformation or the malformation itself. In addition to the abortions that occur, labor takes place prematurely in an additional 10 per cent of the cases. Only about 60 per cent of all the patients with uterus didelphys carry their pregnancies to term. Of those who go to term, about 70 per cent are delivered normally, whereas the remainder have complications. This means that only about 40 per cent of all women with a pregnancy in a double uterus have normal deliveries. The most common factors that produce dystocia are the enlarged, nonpregnant half of the uterus, the vaginal septum when present, uterine inertia, tetanic contraction of the uterus, and retention of the placenta in the uterus. Breech presentation is frequently observed. Complications such as postpartum hemorrhage, hematometra and subinvolution occur more frequently in the presence of these malformations than in normal cases.

Since the majority of patients who go to term deliver spontaneously, the treatment of a case of pregnancy in a uterus didelphys should be conservative. An effort should be made to prevent abortion or premature labor. Repeated examinations should be made from time to time, but with great gentleness, to detect a beginning incarceration of the nonpregnant uterus. If symptoms of incarceration arise, treatment should be instituted early. When the patient goes into labor, she should be

ELECTROCARDIOGRAPHIC TRACINGS WITH PATIENT UNDER ANESTHESIA

To the Editor:—I should appreciate any information you may have available concerning the danger or safety of the taking of electrocardiographic tracings while the patient is under anesthesia, especially ethylene and oxygen.

James F. Alison, M.D., Selma, Ala.

Answer.—It is inconceivable that any dangerous situation might arise from taking an electrocardiographic tracing while the patient is under anesthesia, whether with nitrous oxide-oxygen, ether, or ethylene-oxygen. Even if a small portable electrocardiograph were taken into the room itself, there would be no danger. Some of the older types of machines throw a spark when the circuit is closed. In that case, of course, the machine is to be left in the hall, only the leads being allowed in the room.

OXYGEN TENTS

To the Editor:—Will you please give your impression as to the type of oxygen tent which is giving the best results in the market today? We anticipate the purchase of a tent in the near future and want advice.

M.D., Wisconsin

Answer.—There are several makes of oxygen tents that are sufficiently satisfactory for use under most conditions. The main requirements of an oxygen tent are that it should be large enough, at least 3 feet in each direction, that it should hold oxygen well enough so that from 50 to 60 per cent of oxygen can be maintained in it, and that the cooling device and circulation of the atmosphere of the tent should be adequate to keep the temperature at 70 F. Most of the tents that can be purchased will satisfy all these requirements in the winter time, but on hot summer days the temperature and humidity inside the tent cannot be properly controlled except with a few makes of oxygen tents. The patient's comfort, well being and progress toward recovery are dependent not only on the maintenance of a sufficient amount of oxygen in the tent but also on the control of the temperature and humidity in the tent. The temperature and humidity control has not been recognized sufficiently by most manufacturers. The following are well known tents: Barach-Davidson; Cecil-Plummer; Oxygenaire; Barach-Roth.

DIFFERENTIATING WHITE AND COLORED CHILD

To the Editor:—I have had an unusual case of a white girl giving birth to a male child which is apparently a Negro. I wish you would give me all the information you can in regard to differentiating between a white and a colored child born of a white mother. Kindly list the characteristics from a physical examination and also whatever laboratory means I can use to form a definite conclusion.

J. Marsh Frere, M.D., Chattanooga, Tenn.

Answer.—For the purpose of differentiating between a white and a Negro child, skin color is the only reliable guide. Furthermore, in a Negro child the hair will be dark and may be woolly but need not be so in white-Negro crosses. The eyes will be dark brown. The shape of the head is entirely unreliable, since both long and short heads occur in a white and a (mixed) Negro population. Laboratory tests will not be of much assistance when nothing is known regarding the paternity.

Heredity studies have revealed the fact that dark skin color is generally dominant over light color, although exceptions have been observed (but not for crosses between Negroes and whites). There are cases known in the literature in which two individuals with light coloring had dark-skinned offspring.

When the father is suspected to be either one of, say, two or three individuals, anthropologic measurements and an examination of the blood groups of all concerned may lead to a definite conclusion.

GANGLION OF WRIST

To the Editor:—I request some information in reference to the treatment of the so-called ganglions that occur frequently about the wrist. In cases which have not subsided with firm bandaging, it has been my custom to perform excision. I have had very good results from this treatment. However, there seem to persist rumors of the method of hitting these swellings with a heavy book to cause bursting of them subcutaneously. I have been unable to find this treatment recommended in any authoritative textbook, or to find any surgeon of standing who would admit using it. Will you inform me whether this method of treatment is really standard and satisfactory?

E. C. McCulloch, M.D., Staten Island, N. Y.

Answer.—So-called ganglions may disappear following a severe blow, but this form of treatment is not good practice. The subsidence following a blow probably results from the rupture of the wall, with absorption. Since a certain number may absorb following this procedure, it would be preferable to introduce a small knife at a distance subcutaneously, and cut the wall.

The best surgical practice is to excise the mass. However, this leaves a scar and, furthermore, because of the rather poor circulation, there is often a failure of healing by primary intention. This necessitates the utmost care in operation, which should always be done with the greatest aseptic precautions, in the hospital.

"ACCOMMODATIVE PHOSPHENE"

To the Editor:—Can you tell me where I can find an account of the "accommodative phosphene" of Czermak and how to elicit it? I can see a luminous ring at a distance in the dark, and on accommodation this becomes smaller, presumably from contraction of the pupil. Tscherning says that the experiment did not succeed with him. I am not satisfied that the ring is due to accommodation. It seems to appear anyway in a dark room. It is extremely vague, but *my accommodation is only* about 2 D.

Reginald A. Yeld, M.D., Edgewood, B. C.

Answer.—Details regarding accommodative phosphene can be found in the following articles:

Purkinje, J. E.: Beobachtungen und Versuche zur Physiologie der Sinne, Prague, J. G. Calve **1:** 126; **2:** 115, 1823.

Czermak, J. M.: Sitsungsb. d. k. Akad. d. Wissensch. **27:** 78.

Helmholtz, H.: Helmholtz's Treatise on Physiological Optics, translated from the Third German Edition, Ithaca, N. Y., the Optical Society of America **2:** 9, 1924.

Helmholtz gives a somewhat detailed discussion and covers the points in question.

USE OF OVARIAN EXTRACT AND SEX HORMONES

To the Editor:—In The Journal, October 3, there appeared an inquiry on the treatment of menopausal symptoms. I was expecting to find a suggestion as to the use of theelin or amniotin. You mention hypodermic injections of ovarian extract, which are not the same as the aforementioned products. Do you not consider their use and value as yet proved? I have treated several cases, with a substantial percentage of good results, in one case cutting down the heat flashes in two weeks from twenty a day to five a day by the use of 8 cc. of the product. What about these new extracts?

M. M. Hart, M.D., *New Wilmington, Pa.*

Answer.—The new preparations of ovarian hormone, such as Theelin and Amniotin, have been used in a large number of cases of troublesome menopausal symptoms, but the results obtained are by no means uniform. Neither Amniotin nor Theelin has been accepted for inclusion in New and Nonofficial Remedies. In many cases, no relief at all is obtained whereas in others, just as in the case cited, the benefit derived is excellent. In some cases in which good results are observed, part of the success may be attributed to the psychologic effect of the injections. In patients who have severe menopausal symptoms, these preparations may be employed but, in addition, it is important to prescribe sedatives and a proper diet and mode of living.

LEFT-HANDEDNESS AND BRAIN CENTERS

To the Editor:—I read an article on "The Left-Handed Child," by Arthur Dean, a newspaper syndicate writer. I beg you to give me your opinion as to the correctness of his statement. Mr. Dean seems to assume that, when the manual center is in the right side of the brain, other important centers which normally, or rather usually, belong on the left side are also in the right hemisphere.

Robert W. Gibbes, M.D., Columbia, S. C.

Answer.—This statement may be accepted as substantially correct. The "other important centers" referred to are chiefly those concerned with the speech mechanisms, both motor and sensory, and the eupraxis mechanisms. The leading hemisphere in these functions seems to be usually the left in right-handed persons and the right in left-handed persons, though it is possible that this is not always true. Clinical experience also has shown that in some cases there does seem to be a causal relationship between the compulsory use of the right hand by a left-handed person, and neurotic or other disordered behavior.

HEREDITARY CANCER IN MAN

To the Editor:—A mother was found to have cancer of the uterus within a few months after the birth of a male infant. Is this boy more liable to a future development of cancer than if the mother had not had the cancer?

J. Dale Graham, M.D., Columbus, Kan.

Answer.—In spite of the fact that in certain animals there is a distinct hereditary tendency to cancer, this has not been established as a factor susceptible of determination in human beings. The child in the case cited does not run a greater risk of the development of cancer than does any other child. This statement applies even if the cancer was present before the child was born.

Book Notices

Detachment of the Retina: A Contribution to the Study of Its Causation and Treatment. By J. Ringland Anderson, M.C., M.B., B.S., Ophthalmic Surgeon to the Alfred Hospital, Melbourne. With a foreword by Sir John Herbert Parsons, C.B.E., D.Sc., F.R.C.S. Published for the British Journal of Ophthalmology. Cloth. Price, $6.50. Pp. 207, with 9 illustrations. London: Cambridge University Press; New York: Macmillan Company, 1931.

This is a comprehensive review of the present knowledge of detachment of the retina. The material is divided into chapters, beginning with a presentation of the older ideas concerning the disease, the present ideas about its etiology, and the subjective symptoms and objective observations. Next are described the anatomy and physiology of the retina, the choroid, the circulation of the blood and the aqueous, and the ocular reactions to injuries. The chapter on pathogenesis gives the various theories as to the cause, the history of the origin of these theories, and the associated pathologic changes seen with detachment of the retina. The chapter on diagnosis considers in detail the methods of differentiating this condition from detachments due to sarcoma and gives the field changes as well as tension changes. The chapter on treatment considers the nonoperative method. The main portion of the work deals with the localization of tears or holes in the retina and their treatment by cautery after Gonin, giving in detail the technic for both and the operative results. The section on prognosis discusses the untreated cases and compares these with the cases treated with cautery. The bibliography is complete and conveniently divided into subtitles at the end of each chapter. The work offers nothing original but it does provide for the busy practitioner a compact and satisfactory summary of the present knowledge of the subject and should meet with the widespread approval of ophthalmologists at large.

Cantidad de hemoglobina de la sangre humana en la República Argentina. Tesis. Por el Dr. Oscar Orias. Trabajo del Instituto de Fisiología de la facultad de ciencias médicas de Buenos Aires. Paper. Pp. 116. Buenos Aires: Frascoli y Bindi, 1930.

The Newcomer colorimetric technic for the determination of hemoglobin is considered the most practical, exact method, and is the procedure of choice. The bloods of many people of the Argentine Republic have been examined by the author, who concludes that his values for the hemoglobin of this group of people are similar to those obtained in other parts of the world. Hemoglobin values are greater in males than in females, and greater in the new-born than in the adult; the hemoglobin value drops during pregnancy but rapidly returns to normal after the puerperium. At altitudes of 1,200 meters or more, an appreciable increase in hemoglobin occurs. University students and officials show greater hemoglobin values than do soldiers and sailors. It is thought that this apparent discrepancy is due to differences in nutrition, clothing and conditions of work in these classes of people. The variations encountered in different social groups merit further investigation.

Physiopathologie de la thyroïde: Diagnostic et traitement des goitres. Par Lucien Dautrebande, de la Fondation Reine-Elisabeth. (Avec la collaboration du Dr. A. Lemort.) Paper. Price, 40 francs. Pp. 326, with 36 illustrations. Paris: Masson & Cie, 1931.

In the first part of the book the author discusses the normal and the pathologic physiology of the thyroid gland in their relations to the chemical composition of the gland, its histology, general metabolism, and the special histology of various nutritional elements. The geographic distribution of goiters throughout the world and their relation to lack of iodine in water and in agricultural products are studied. Original ideas as well as a criticism of former conceptions of hyperthyroidism are presented. The second part of the book is devoted to clinical considerations, and the author presents a physiopathologic classification of thyroid disorders, in which the presence or absence of hyperthyroidism is considered the essential point of differentiation and the determination of the basal metabolic rate is emphasized as being the most important piece of evidence in the differentiation of hypothyroid, normal and hyperthyroid states as well as in the estimation of the gravity of a given case of hyperthyroidism. This point is debatable and would probably be considered by most clinicians as of importance secondary to the clinical observation of the patient. Several chapters are devoted to the exposition of the author's main thesis; i. e., the major importance of prolonged iodine therapy in the successful treatment of hyperthyroidism. The surgical treatment of this condition, which in America at least is generally considered the treatment of choice, is relegated by the author to a place of secondary importance. In an appendix, certain neurotic conditions simulating hyperthyroidism are briefly discussed, together with the differential diagnosis by means of the basal metabolic rate. The book is well arranged throughout and, while little fundamentally new knowledge is presented, many of the apparently minor details give food for thought. A bibliography of several hundred titles completes the work.

Steps in the Dark. By Milton Mayer and John Howe. Cloth. Price, $2.50. Pp. 227. Chicago: Thomas S. Rockwell Company, 1931.

This volume includes a series of sketches for the popularizing of knowledge concerning science. Among the subjects of medical interest are the researches of Falk on influenza, of Luckhardt on ethylene, of Maud Slye on cancer, of Carlson on hunger and of Jacobson on relaxation. The first and the last of these are hardly sufficiently established or sufficiently significant to warrant the type of consideration that is given them. The interest of the other essays given in the book is of general scientific rather than of medical importance.

Die vierfache Muskelinnervation einschliesslich der Pathogenese und Therapie der progressiven Muskeldystrophie. Von Ken Kuré, Professor an der Universität Tokyo. Paper. Price, 20 marks. Pp. 320, with 137 illustrations. Berlin: Urban & Schwarzenberg, 1931.

This is an account of a large amount of research work on the cerebrospinal, sympathetic and autonomic innervation of muscle, all correlated with the investigations of other workers, which are subjected to a critical review. Chemical and pharmacologic investigations are reported as well as histologic studies and physiologic experiments. The chief practical application of interest to practicing physicians relates to the muscular atrophies. In a general way, so-called spinal muscular atrophy, including amyotrophic lateral sclerosis and neuritic muscular atrophy (Charcot-Marie type) are related to the cerebrospinal motor system, while it is claimed that in muscular dystrophy the sympathetic and autonomic innervation is at fault. The author has found that benefit has been obtained from treatment with atropine and pilocarpine, provided the motor nerve endings have remained intact.

The Cardiac Cycle. By Harrington Sainsbury, O.B.E., M.D., F.R.C.P., Consulting Physician to the Royal Free Hospital, Ventnor. Cloth. Price, $1.75. Pp. 79. New York: William Wood & Company, 1931.

Theories as to the phenomena of the cardiac cycle must, the author says, tally not alone with the facts of physiology but with the laws of physics and chemistry that operate as well in the living body as in the outer so-called inorganic world. When physiologic views are at variance with these laws, such views must yield; physics and chemistry are fundamentals. He makes the flow of the lymph a part of the circulatory act, a part of "one general, associated, liquid movement which obtains throughout the body—a movement essential to its corporate life." He stresses the pulse wave as an important pressor factor in the lymph circulation. The monograph is scholarly and well written. It will interest especially the student of cardiac physiology.

Arzneiverordnungsbuch der Deutschen Arzneimittelkommission. Fourth edition. Paper. Pp. 201. Leipzig: Verlag der Buchhandlung des Verbandes der Ärzte Deutschlands, 1930.

This collection of brief descriptions of remedies "that might be recommended to physicians" is edited by a committee somewhat analogous to the Council on Pharmacy and Chemistry of the American Medical Association, which was originated in 1911 by the Deutsche Gesellschaft für innere Medicin. The booklet itself differs from *New and Nonofficial Remedies* in that it gives information on official remedies also. It is, indeed, intended as a physician's handbook. Systematic attention is given to the cost of remedies and even of finished prescriptions, which seems to be demanded by the prevailing financial condition of the country, and most especially of the *krankenkassen.*

a physician, but treatment failed to relieve the pain and swelling. The knee grew steadily worse. In September or October, 1926, an operation was performed and the plaintiff was shown "to have an infection of the bone called 'sarcoma' which had resulted from the injury." "Sarcoma," said the Supreme Court of Missouri, Division No. 2, before which the appeal was heard, "is a condition resulting from infection sometimes caused by traumatic injury." At the time of the trial, November, 1927, the plaintiff was not able to walk without the aid of a cane or somebody to lean on. The testimony of medical experts indicated that it was highly probable that an amputation would be necessary. There was substantial evidence, said the Supreme Court, tending to show that the tumor from which the plaintiff suffered was of a malignant type, likely to get into the blood stream, if it had not already done so, and carry "the infection" to other parts of the body, threatening not only the patient's health but her life. Under such circumstances the judgment for $25,000 awarded by the trial court was not unreasonable.—*Capstick v. T. M. Sayman Products Co. (Mo.), 34 S. W. (2d) 480.*

Hospitals: Liability of Superintendent of Insane Asylum for Crime Committed by Released Inmate.—Smith, an inmate of the Central Louisiana Hospital for the Insane, was released by its superintendent, the defendant in this case. On the day Smith was released, he killed the plaintiff's husband. A lunacy commission found that Smith was insane at the time of the homicide. The widow of Smith's victim, in suing the superintendent of the asylum, alleged that he deliberately and maliciously permitted Smith to have his liberty "when he knew that Smith was suffering from paranoia, which is recognized as an incurable disease, causing the sufferer to be extremely dangerous, with a persistent desire to take human life." The trial court gave judgment in favor of the defendant, which judgment the court of appeals of Louisiana, second circuit, affirmed. Through the board of administrators of the hospital, said the appellate court, the superintendent of the hospital was the representative of the state in conducting a state institution. In releasing inmates, he was vested with discretionary authority, in the exercise of which he released Smith. His good faith, therefore, cannot be questioned in a suit for damages resulting from an act of a discharged inmate, even though it be charged that in releasing that inmate he acted maliciously and without regard to the rights and safety of the public. Moreover, even though it were admitted that the superintendent was guilty of negligence, it could not be said that that negligence or the fact that Smith was released was the proximate cause of the death of the plaintiff's husband.—*Cappel v. Pierson (La.), 132 So. 391.*

Evidence: Scope of Expert's Opinion.—In a trial under an indictment charging murder by shooting, it was shown that the body of the victim was found on the railroad track, between the rails, while the head, which had been severed from the body, was lying about two feet from one of the rails. There was a gunshot wound in the left breast and another in one of the arms. The spinal column protruded from the body about 3 inches. The bone was not crushed, nor were the tissues bruised or mangled. The Court of Appeals of Kentucky held that it was not improper for a physician who had had considerable experience in cases of persons who had been run over by trains and who was testifying as an expert, to testify that he did not believe that "the railroad wheel cut this man's head off."—*Spencer v. Commonwealth (Ky.), 35 S. W. (2d) 319.*

Hospitals: Liability for Injury to a Special Nurse.—The plaintiff, a nurse, was caring for a patient in one of the rooms of the defendant hospital. She was not in the employ of the hospital but in the employ of the patient who occupied the room. According to her testimony, when she went on duty she told the head nurse on the floor that the floor of the room was slippery. On the following day she slipped, fell, and was injured. From a judgment in her favor, the hospital appealed to the Supreme Court of California. In her brief, the nurse claimed "a status enabling her to claim the same degree of protection as an employee in her place of employment" and that "the employer is bound to provide a reasonable safe place for his employee to work in." It clearly appears, however, said the court, that her status was that of an invitee and that she was in no sense an employee of the hospital. She had full knowledge of the condition of the floor during the afternoon of the first day of her employment in the hospital and for two hours in the forenoon of the next day. The hospital had no knowledge of the fact superior to that possessed by the nurse. If it was negligence for the hospital to maintain the floor in the slippery condition described by the nurse, there appears to be no escape from the conclusion that it was negligence for the nurse, with full knowledge of such condition, to continue in the use thereof. It was not necessary for the hospital to plead the contributory negligence of the nurse when that negligence was disclosed by her own testimony.—*Mautino v. Sutter Hospital Association (Calif.), 296 P. 76.*

Evidence: Qualifications of Physicians to Testify as to Firearms.—In a prosecution for murder, two physicians who examined the body of the deceased swore that from that examination they concluded that he had been shot through the head with a small bullet, either a 0.30 or 0.32 caliber. One of these physicians testified that the pistol submitted to him in the course of the trial was a 0.38 caliber pistol and in his judgment that was not the size of the bullet that made the wound in the head of the deceased. He testified further: "The shell you hand me now, is a 32, and looks like the bullet that made the wound." Concerning his qualifications to give such testimony, one physician said:

> To some extent I am familiar with the various sizes and calibers of pistols. In my practice I have had some experience in observing and treating gunshot wounds, but not a great deal of experience along that line. From my experience and observation of various caliber of guns and pistols, I think I can tell about what size caliber bullet that made the wound I saw there on Stegall's head.

The other physician testified:

> I have had quite a little experience in examining wounds of that character, and am familiar with the various sizes and calibers of guns and pistols. From the examination I made of the wound found on the deceased, in my judgment it was made with a 30 or 32 caliber bullet.

Objection was made to the testimony of these physicians on the ground that they were not shown to be sufficiently qualified to give their opinions. But, said the court of criminal appeals of Texas, we think the objections to the testimony of neither witness were tenable.—*Landry v. State (Texas), 35 S. W. (2d) 433.*

Evidence: Expert Opinion as to Causal Relation Between Disability and Accident.—If there is no dispute concerning the manner and cause of an injury or that an injury was sustained, a physician may directly testify that in his opinion a condition found later was caused by that injury. In this case there was no dispute that the plaintiff came in contact with a live wire and was severely injured. There was no error, said the Supreme Court of Illinois, in permitting a medical witness to state as his opinion that in all cases of severe electric shock a dilatation of the heart results, and to testify that he had found, both by clinical examination and by roentgenograms, that the plaintiff at the time of the trial was so affected.—*Wolczek v. Public Service Co. of Northern Illinois (Ill.), 174 N. E. 577.*

Insanity: Effect on Competence of Witness.—The fact that a person has been adjudged insane and confined in a state institution does not necessarily render him incompetent as a witness. Insane persons may have lucid intervals, and it is for the jury to determine whether the occurrence to which the witness testified occurred during a lucid interval and whether the witness is sane when he testifies.—*Conoway v. State (Ga.), 156 S. E. 664.*

Society Proceedings

COMING MEETINGS

Philippine Islands Medical Association, Manila, December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

trose and transfusion should be employed promptly, and the minimum period during which milk is withheld should be from twenty-four to thirty-six hours, or until the detoxification is complete. 3. Once the feeding of milk is started it should be given in small quantities of from 5 to 10 cc., and increased slowly, the limited tolerance for food during this period of adjustment always being respected. 4. When there is a relapse, treatment should be started again from the beginning with the intravenous administration of dextrose, transfusion of blood and withholding of milk. 5. Patients with intercurrent infections, especially otitis media and abdominal distention, should be treated actively. 6. Special nursing care is of the greatest importance. The intelligent nurse often sees the child in a truer light than the physician who calls only two or three times daily. Her observations are most important in deciding when to start to give the patient milk, when to increase the amount and when to discontinue the use of it. The author believes that the routine he outlines, especially the continuous intravenous administration of dextrose solution by the drip method, can be applied to almost all intoxications of early childhood, especially those associated with gastro-intestinal disturbances. This method can be employed for such conditions as severe acidosis originating in diabetic or in cyclic vomiting. In the former, a steady supply of dextrose with or without insulin may be administered; in the latter, dextrose could be given as needed. Some cases of peritonitis, bacteremia, dysentery, icterus, tetanus, bulbar poliomyelitis, postdiphtheritic paralysis of the palate and shock —surgical, traumatic or due to burns—also suggest themselves for this treatment.

Oxycephaly.—In the study of a series of clinical cases of oxycephaly as well as the data reported in the literature, Bronfenbrenner noted certain characteristics of a compensatory adjustment mechanism: When a premature closure of the coronary skull suture occurs, it impairs the normal adaptability of the skull to the growing brain of a child, and an effort to meet the demands of the growing brain brings about the oxycephalic deformity. Factors of the premature synosteosis and the subsequent compensatory struggle may naturally damage the brain and its adjacent parts. Most frequently the optic nerve undergoes severe atrophic changes. The degree of the damage sustained by the entire brain bears a direct relation to the efficiency of the compensatory process: the less effective has been the compensatory mechanism and, thus, the less outspoken are the morphologic features of oxycephaly, the greater the brain damage to be expected. Hence, a marked mental defect is found in rather mild, atypical instances of oxycephaly (and allied deformities of the skull), while in cases with outspoken oxycephalic features a mental defect might not enter into the clinical picture at all. Various intracranial infectious processes appear to be the main etiologic factors in the premature skull synosteosis of oxycephaly and allied deformities of the skull. The cases reported by the author emphasize the importance of tuberculosis and especially syphilis as probable etiologic factors of oxycephalic deformity.

Am. J. Roent. & Rad. Therapy, Springfield, Ill.

26: 511-638 (Oct.) 1931

Contribution of Roentgenology to Medicine and Surgery in Last Twenty-Five Years. J. T. Case, Chicago.—p. 511.

Progress in Development of Roentgen-Ray Apparatus. H. M. Imboden, New York.—p. 517.

Relation of American Journal of Roentgenology and Radium Therapy to Development of Radiology. A. C. Christie, Washington, D. C.—p. 523.

Contributions of a Quarter Century of Electron Physics to Roentgen-Ray Science. G. L. Clark, Urbana, Ill.—p. 528.

Historical Evolution of Roentgen-Ray Plates and Films. F. C. Martin and A. W. Fuchs, Rochester, N. Y.—p. 540.

Early American Roentgeniana. E. H. Skinner, Kansas City, Mo.—p. 549.

*Review of Pneumonoconiosis: Further Roentgenologic and Pathologic Studies. H. K. Pancoast and E. P. Pendergrass, Philadelphia.—p. 556.

Review of Pneumonoconiosis.—Pancoast and Pendergrass review the subject of pneumonoconiosis from the standpoint of its etiology, its pathology and its roentgenographic appearances. Pneumonoconiosis is a more or less necessary risk of commercial development in the progress of civilization, but its progress and serious aspects may be lessened by certain preventive measures in most instances. Its incidence in many industries apparently cannot be altogether eliminated. It has aroused widespread interest and has received a great amount of study during the past few years. The roentgenologic examination is the most important and accurate means of detecting its presence, especially in early cases, of studying its progress and of determining its extent and severity. Rapidity of progression is easily determined by serial study. The authors believe that roentgenology will be employed more and more extensively as the necessity of study of workers in hazardous industries becomes realized and regulations for protection and compensation laws are adopted in this country. The roentgenologist must be experienced in his work and honest in the expression of his opinions. It behooves the roentgenologist to become thoroughly familiar with the subject from every angle. The particular hazards of certain industries must be understood and the roentgenographic appearances more or less characteristic of some of them must be learned. Roentgenographic appearances are the expressions of pathologic changes, and to interpret them properly requires an intimate knowledge of the pathology of the condition. A summary is given of the present exact knowledge of the pathology of pneumonoconiosis based on necropsy study and animal experimentation. Various theories advanced in explanation of some uncertain points are given brief consideration. Various classifications of the degrees of progress of the condition are in use in different countries. Most of these have a clinical basis with which roentgenographic appearances must be made to conform. No one of them seems adequate or entirely satisfactory in its application to every dusty industry, especially from the standpoint of the roentgenologist. The authors propose a new pathologic-roentgenologic classification.

Archives of Ophthalmology, Chicago

6: 489-646 (Oct.) 1931

Holth's Iridencleisis Antiglaucomatosa: Follow-Up Examination of One Hundred and Twenty-Two Eyes from Six to One Hundred and Fifty-Nine Months After Operation. H. G. A. Gjessing, Drammen, Norway.—p. 489.

Presence of Vitamin A in Retina. A. M. Yudkin, New Haven, Conn.—p. 510.

Diagnostic Scales for the 1 Degree and 0.17 Degree Form Field Stimuli for Eight Principal Meridional Quadrants Taken Separately. C. E. Ferree, G. Rand and M. M. Monroe, Baltimore.—p. 518.

*Retinal Changes of Arteriosclerotic Heart Disease and Essential Hypertension. E. F. Horine and M. M. Weiss, Louisville, Ky.—p. 535.

Bitemporal Paracentral Scotoma: Case. C. E. G. Shannon, Philadelphia.—p. 544.

Lens Extract: Its Preparation and Clinical Use. E. L. Burky and A. C. Woods, Baltimore.—p. 548.

Gunshot Wound of Optic Nerve: Case. Hallie Hartgraves and P. C. Kronfeld, Chicago.—p. 554.

Development of Lens: Its Significance in Interpretation of Lenticular Abnormalities. B. Friedman, New York.—p. 558.

Buphthalmos Secondary to Congenital Iridocyclitis. W. G. M. Byers, Montreal.—p. 578.

*Conjunctivitis and Blepharitis Due to Yellow Mercuric Oxide. Beatrice M. Kesten, New York.—p. 582.

Tumors in Pituitary Area: Neurologic Symptoms. T. H. Weisenburg, Philadelphia.—p. 589.

Retinal Changes in Heart Disease.—Horine and Weiss believe that retinal changes must be correlated with the modern knowledge of heart disease. The failure of the authors of ophthalmologic textbooks to realize that arteriosclerotic heart disease and essential hypertension are distinctly different entities has caused much confusion. The blood pressure is elevated in essential hypertension but not in arteriosclerotic heart disease. Retinal changes in essential hypertension are quite different from those of simple arteriosclerosis. The terms albuminuric and nephritic retinitis are etiologically inaccurate and should be discarded. When referring to a patient with essential hypertension, one should use the term arteriolar sclerotic retinitis in place of arteriosclerotic retinitis. Retinal arteriolar sclerosis is usually progressive and, once developed, is permanent. The persistence of retinal arteriolar sclerosis permits of a diagnosis of essential hypertension even if the blood pressure is normal. Prognostically, changes in the fundus are of definite value.

Conjunctivitis and Blepharitis Due to Yellow Mercuric Oxide.—Kesten reports a case of conjunctival and skin sensitivity to yellow mercuric oxide. This sensitivity was confirmed by a disappearance of the inflammation when mercury ointment was discontinued, by a reappearance of the eruption following its application, and by positive patch tests.

in children under 2 years was 15.4 per cent; in adults over 50 it was 40 per cent. In children under 14 years it was 3.9 per cent. The mortality was largely affected by the age, state of the lung, infecting organism, and infective complications. The author believes that, except for aspiration, thoracotomy should be delayed until the metapneumonic stage. Drainage in many cases can be effected by interrib tube drainage. In others, rib resection may be necessary. Rib resection is not open drainage if properly managed. Closed drainage is the proper method in nearly all cases and will effect a cure in nearly every case.

Diaphragmatic Hernia.—According to Harrington, diaphragmatic hernia is relatively common. The symptoms of diaphragmatic hernia are usually definite and depend on the amount of mechanical interference with function of the organs involved. Diagnosis from clinical symptoms only is often difficult, because the syndrome often stimulates that of other organic diseases, the most common of which are cholecystitis, gastric ulcer and heart disease. Roentgenologic examination of the stomach is important in establishing a definite diagnosis. Operative replacement of the herniated viscera into the abdomen, and repair of the abnormal opening in the diaphragm, is the only treatment which insures complete relief of symptoms. Palliative phrenicotomy may be used in selected cases in which operation is contraindicated. Preliminary phrenicotomy is often of value in the repair of enlarged hernial openings if there has been considerable loss of structure. Of the forty-five surgical cases reported by the author, radical operation was performed in thirty-eight. There were five operative deaths and no recurrences.

Hernia or Eventration of Diaphragm.—Eggers calls attention to the fact that there are three main varieties of maldevelopment of the diaphragm: 1. A false congenital hernia is one without a sac. It is really a defect in the diaphragm due to failure of its various components to fuse properly. Abdominal contents may slip through this defect and lodge in the thorax without any covering. 2. A true congenital hernia, on the other hand, develops through a weak spot in an already formed diaphragm. As the abdominal contents slip into the chest, the peritoneum and pleural layers covering the weak spot are pushed ahead and form the sac of the hernia. This condition is much less common than false hernia. 3. Eventration of the diaphragm is comparatively rare. It may be congenital or acquired. There is no defect or hole in the diaphragm; it is simply relaxed and atrophic and bulges into the thorax often to the level of the third or fourth ribs. The congenital form is said to be due to failure of development of the muscle elements or of the phrenic nerve. Not much is really known about the underlying cause. The acquired type is occasionally seen as a complication of an acute infectious disease probably by the toxin acting on the nerve. It may also follow trauma to the neck in which the phrenic nerve is injured, as for instance during difficult labor. In either event one finds or expects to find a dome shaped bulge extending from the diaphragmatic attachments into the thorax. One would expect a uniform bulge, and one might reasonably think that the circumference at the base, meaning at the diaphragmatic attachments, would be larger than at the apex of the dome. In that case no constriction of the contents would occur. A case observed by the author did not quite correspond to such a picture. It was no doubt an eventration, but it seemed at the same time to be a hernia. The explanation seems to lie in the finding that apparently not all the elements of the diaphragm were involved in the process. It was the central tendon which had become stretched to form the large intrathoracic sac while the muscular elements were sufficiently developed to form a thick margin of what looked like a hernial ring. It appeared to be a localized eventration, or even a sacculated or diverticular eventration, due to partial paralysis or weakness of the diaphragm.

Respiratory Movements.—Brock and Blair describe an adaptation of the heart-lung preparation of Starling as modified by Daly, by means of which the exudate from each lung may be separately collected for a period of hours. In this way it was possible to show that in a living preparation the formation of a pleural effusion is dependent on the respiratory movements, an observation that corroborates the conclusions previously drawn by Graham from experiments which utilized dead lungs in an artificial thorax. Under direct visualization, fluid can be seen to drip from an edematous lung in expiration, and it is suggested that the rise in negative pressure during the act of inspiration fills the subpleural lymphatics, and when expiration follows, these filled lymphatics empty part of their contents into the pleural space. An edematous condition was produced (1) by pouring acidified fluid directly into the bronchi, (2) by means of passive congestion, and (3) by an active inflammatory process; namely, exposure to a dilute chlorine mixture. On the living intact animal, after an edematous lung has been produced either by methods 1 or 2, fluid can be collected by means of a cannula inserted into the pleural space. In this way it was possible to show that the rate of formation of the fluid is dependent on the force of the respiratory movements and the associated pressure changes. A quiet, easy respiration produces a small effusion; a deep, labored breathing causes a much more rapid accumulation. In addition to fluid of an inflammatory nature passing from the lung to the pleural space, it has been shown that an ordinary Ringer's solution, if introduced into the bronchi and alveoli, will, by the respiratory movements, be made to pass into the pleural cavity. Part of a broth culture of a streptococcus was added to Ringer's solution and introduced into the lung in the same way. The organisms were found to pass through the pleura with the fluid almost immediately and without the aid of cellular activity. It is suggested that this may be an important mode of infection in the body and may indeed be the point of entry of some of the septicemias of obscure origin. Just as the rate of formation of fluid is influenced by the character of the respiratory movements, so also is the rate of absorption of fluid affected. With quiet, easy respiration the absorption is slow; with deep, labored breathing it is much more rapid. A large accumulation of fluid with a consequent large surface area of contact is in any case absorbed at a slightly more rapid rate than a smaller collection; this increase is, however, in no way comparable with the marked effect of increase of the force of the respiratory movements.

Reflex Relationships Between Lungs and Other Viscera.—Pottenger states that vagal afferent fibers are distributed to all the abdominal organs except the colon and sigmoid, and there is some question about the proximal colon. Vagal centers in the medulla, however, may be reflexly influenced by afferent stimuli carried over the sacral nerve, which together with the afferent vagal fibers would bring the centers into reflex relationship with all important thoracic, abdominal and pelvic viscera. Afferent vagal impulses from any viscus may express reflex activity through the pulmonary efferent vagal fibers, and by so doing, if the conditions are favorable, produce bronchial constriction and bronchial shortening, and an altered secretion of the glands of the bronchial mucous membrane, usually an increase in amount. Furthermore, afferent vagal impulses acting on the respiratory center may produce inhibition of inspiration (which carries with it an inhibitory effect on inspiration). These are the conditions noted in pulmonary collapse. It is also known that while stimulation of an afferent vagal fiber may act on the respiratory center and produce either inspiration or expiration, it usually produces the latter. Thus the mechanism through which the stimuli necessary to produce reflex effects in the lungs act is present and could be called into play by operations which affect either the vagus, pelvic or any other mediating nerve. In operation on the important viscera below the diaphragm, ample opportunity for excessive irritation of both sympathetic and vagus afferent systems exists. In explanation of the vagal preponderance of action in the lung it must be remembered that the afferent sympathetic neurons from the abdominal organs which unite with efferent sympathetic neurons and antagonize vagal activity mediate in the lower six thoracic segments and not in the upper six from which the pulmonary sympathetics arise. Sympathetic reflexes from the abdominal viscera would express themselves by inhibiting muscular action in the gastro-intestinal tract, as in the ileus which now and then occurs. So while the pulmonary vagal fibers are stimulated the antagonistic sympathetics are not, and so a condition favorable to overvagal activity is brought about, which might be sufficient to produce the syndrome of collapse in certain individuals, particularly those of the vagotonic type.

base of the lungs are of extreme importance in accurate diagnosis. The electrocardiograph has perhaps done more to clarify the field of cardiac pain than almost any other factor. While in the present state of knowledge one must admit that coronary sclerosis may be present in severe degree without alteration in the electrocardiogram being present, nevertheless in many cases of simple coronary sclerosis electrocardiographic evidence is obtainable. During the last two years the authors followed closely nineteen cases of coronary thrombosis. Because of the availability of the modern portable electrocardiograph, they have been able to make careful and repeated electrocardiographic studies in these nineteen cases. There has not been a single case in which, sooner or later, definite evidence of coronary thrombosis with cardiac infarction was not found, electrocardiographically. In some cases the evidence was obtained as early as one hour after the complete occlusion; in one case such evidence did not appear until the end of forty-four hours after the occlusion. In other cases, several days had elapsed before the initial tracing was made. All these nineteen cases have been verified by subsequent history or by necropsy.

Minnesota Medicine, St. Paul

14: *879-942* (Oct.) *1931*

*Cardiology and the General Practitioner. D Luten, St. Louis.—p. 879.
Prenatal Care and Careful Conduct of Delivery. M. C. Berghem, Hawley.—p. 884.
Recurring Preeclamptic Toxemia: Its Clinical Significance. R. D. Mussey, Rochester.—p. 889.
Accidents of Labor. J. R. Manley, Duluth.—p. 892.
Allergy and Pneumococcus Lobar Pneumonia. H. A. Reimann, Minneapolis.—p. 898.
Vincent's Disease. R. I. Rizer, Minneapolis.—p 901.
Founding of Ramsey County Medical Society. J. M. Armstrong, St. Paul.—p. 904.
Ramsey County Medical Society's Library. H. L. Taylor, St. Paul. —p. 906.
Treatment of Anal Fissures. H. F. Bayard, Minneapolis.—p. 910.
Diverticulitis of Colon and Sigmoid: Its Complications and Treatment. A. E. Benjamin, Minneapolis.—p. 912.
Proposal of Wholesale Passive Immunization Against Poliomyelitis Epidemics. J. C. McKinley, Minneapolis.—p. 921.

Cardiology.—Luten believes that simple tachycardia in many instances represents an adjustment of the circulation to pathologic processes and should not receive special therapeutic consideration. Therapy in such cases obviously should be directed not toward slowing the heart but toward mitigating the cause of the tachycardia. Mere slowing may indeed on occasion be harmful. The initiation of direct measures to lessen the heart rate in hemorrhage, in pneumonia, in fright or in exophthalmic goiter would appear as illogical as the taking of similar means to slow the respiratory rate in the same circumstances; as illogical as trying to slow it after exercise. The assumption is widespread that tachycardia itself is attended by serious danger if long continued; that the heart cannot long withstand rapid beating. This conception has received an emphasis which appears to be unwarranted. The heart is physiologically adapted to rapid action. Increase in rate alone does impose added burden, but a normal heart bears the burden well. Furthermore, compensatory adjustments usually supervene. Even a diseased heart usually appears to suffer little impairment of function from tachycardia of considerable extent, provided the muscle is activated in normal fashion; i. e., provided the tachycardia originates at the normal pacemaker. In a diseased heart obviously the danger of fatigue from tachycardia may be enhanced, but even in such cases compensatory adjustments in stroke output and in vascular tension usually relieve the heart of this added danger. In many instances, indeed, the accelerated action itself appears to be a compensatory adjustment, tachycardia representing the effect of circulatory impairment, not its cause. The chief indication of therapy in such cases should be the protection of the heart from further danger, not an unphysiologic adaption to injury already received. Not only is it inadvisable, in many instances, to slow the rate in simple tachycardia, but in adults it is rarely possible by therapeutic means to do so. In therapeutic dosage digitalis rarely, if ever, in adults causes slowing of consequence by direct action on the cardio-inhibitory apparatus. The physician who pushes digitalis in such an attempt, even if slowing is desirable, subjects his patient to the serious danger of digitalis intoxication. Abnormal rhythms in the vast majority of instances do not require special therapeutic measures. Some of them frequently are valuable hints in diagnosis and useful guides in therapy. They call for general examination and treatment, not merely for examination of the heart and cardiac drugs. The abnormal rhythm itself is rarely dangerous; it is frequently annoying. Special treatment, therefore, when indicated, is rarely an emergency measure. In most instances a complete history is more important than a complete cardiac examination.

New England Journal of Medicine, Boston

205: 747-792 (Oct. 15) 1931

*Myelotomy in Treatment of Syringomyelia. T. J. Putman and D. Munro, Boston.—p. 747.
*Sarcoma of Bladder in Children: Case. E. R. Mintz, Boston.—p. 756.
*Results of Use of Stramonium Datura in Parkinson's Disease and Postencephalitic Parkinsonism. O. J. Menard and L. M. Hurxthal, Boston. —p. 759.
Progress in Laryngology. L. A. Schall, Boston.—p. 763.

Myelotomy in Syringomyelia.—Putnam and Munro present four cases of syringomyelia in which the patients were treated by myelotomy. One patient showed practically no improvement. Immediate improvement was slight in two others, but striking in one instance. From a survey of the literature it appears that the operation has had a favorable, but not curative, result in the great majority of cases. In some instances the results have been permanent, in others the disease has progressed. Symptoms have apparently not been increased by operation. Only one fatality is recorded in cases reported since 1926. Roentgen treatment probably acts by arresting gliosis, operation by relieving pressure. Sometimes one, sometimes the other, may be more effective. Radiation should always be employed as an adjunct to operation. Pending further experience, the authors believe that operation should be reserved for patients who are not relieved by roentgen treatment, or who have root-pains, or spinal block or who are incapacitated by the disease. To these it offers real hope of improvement.

Sarcoma of Bladder.—Mintz reports a case of sarcoma of the bladder in a boy aged 5 years. He states that approximately fifty-five authentic cases of sarcoma of the bladder have been reported in children under 5 years of age. The etiology is obscure. The pathologic changes are varied. All histoid elements have been reported. Hematuria is usually not a presenting symptom. Frequency, dribbling, acute retention and bed-wetting are common symptoms. Recurrences are frequent and early. Metastases are not common. The course is invariably fatal. Operation seems to hasten death. In all the recent cases, diagnosis was made by cystoscopy. Partial excision of the bladder wall, excision of the tumor and diathermy have been tried with little success. Total cystectomy with resection of the urethra is the only hope for cure.

Stramonium in Parkinson's Disease.—From their observations in twenty-two cases, Menard and Hurxthal conclude that stramonium datura in adequate dosage is a helpful drug in attempts to alleviate some of the distressing symptoms of either Parkinson's disease or postencephalitic parkinsonism. They believe that it should be tried in all such cases.

205: 793-840 (Oct. 22) 1931

*Gastro-Intestinal Hemorrhage in Disease of Gallbladder. F. W. White and I. R. Jankelson, Boston.—p. 793.
Treatment of Acute Empyema and Pulmonary Abscess. W. Whittemore, Boston.—p. 797.
**Branchial Cysts and Fistulas. W. M. Shedden, Boston.—p. 800.*
*New Treatment for Acute Bursitis. T. K. Richards, Boston.—p. 812.
Progress in Psychiatry. I. H. Coriat, Boston.—p. 814.

Hemorrhage in Disease of Gallbladder.—According to White and Jankelson, severe gastro-intestinal hemorrhage in disease of the gallbladder is rare, but the possibility is important in diagnosis. Such cases are apt to be mistaken for peptic ulcer, especially if the history is doubtful and if adhesions cause some deformity of the duodenum or pylorus. In cases of hematemesis with jaundice, the possibility of gallbladder disease should be considered. Coincident ulcer and gallstones are not rare and may be misleading; the ulcer may heal after hemorrhage and only gallstones be found at a later roentgen examination. Jaundice was not an important factor in causing the hemorrhage in a group of cases studied by the authors. Hepatitis associated with gallbladder disease may be a factor, but

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 733-786 (Oct. 24) 1931

Harvey: The Man, His Method, and His Message for Us Today. R. Hutchison.—p. 733.
*Toxic Goiter: Course of Disease, and Its Treatment. F. R. Fraser.—p. 739.
Psychic Pain and Psychoses. H. Devine.—p. 742.
**Puerperal Sepsis: Importance of Early Treatment. A. R. Hobbs.—p. 744.*
Some Common Complaints Amenable to Spinal Treatment. T. Marlin.—p. 746.
Two Cases of Sarcoma Following Known Trauma. D. H. Haler.—p. 748.

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35: 201-256 (Oct.) 1931

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An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 733-786 (Oct. 24) 1931

Harvey: The Man, His Method, and His Message for Us Today. R. Hutchison.—p. 733.
*Toxic Goiter: Course of Disease, and Its Treatment. F. R. Fraser.—p. 739.
Psychic Pain and Psychoses. H. Devine.—p. 742.
*Puerperal Sepsis: Importance of Early Treatment. A. R. Hobbs.—p. 744.
Some Common Complaints Amenable to Spinal Treatment. T. Marlin.—p. 746.
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Journal d'Urologie Médicale et Chirurgicale, Paris

32: 201-296 (Sept.) 1931

Residual Nitrogen in Urinary Diseases. G. Basile.—p. 201.
*Renal Insufficiency in Prostatic Hypertrophy Without Vesical Residue. T. Katz.—p. 207.
*Modification of Microbic Flora in Treatment of Hemorrhagic Cystitis. L. Sas.—p. 221.

Renal Insufficiency in Prostatic Hypertrophy Without Vesical Residue.—Katz asserts that hypertrophy of the prostate is a mechanical or dynamic obstacle to the evacuation of urine, that the bladder is the first to be affected by this difficulty, and that it combats the dysuric state and the increasing obstacle by hypertrophy of its musculature. When the hypertrophy becomes insufficient, the patient enters the period of the disease characterized by residual urine. An examination of 1,500 cases of hypertrophy of the prostate revealed that in 30, or 2 per cent, there was no residual urine and the renal function was not impaired. The conclusions were as follows: Intravenous pyelography in prostatic hypertrophy is advantageous. Operative procedures should not be postponed because the vesical residue is minimal. Various laboratory methods should be used in examination for renal function; in prostatic hypertrophy these examinations should not be limited to dysuria or pollakiuria phenomena. The general health of the patient and the condition of his cardiovascular system must also be considered in surgical intervention. The author plans to incorporate roentgenography of the seminal vesicles in relation to the ductus deferens and the ureters in a great number of cases of hypertrophy of the prostate without residue and to interpret the latter through anatomic researches in a large series of cadavers.

Modification of Microbic Flora in Treatment of Hemorrhagic Cystitis.—Sas based his observations in Bacillus coli and streptococcus inflammation of the bladder on a consideration of the semeiology, cystoscopic picture, character of the infectious development, and finally the response to treatment. He found that colibacillary cystitis is a secondary infection, the primary source being the upper urinary tract; colibacillary cystitis is responsive to treatment. On the other hand, streptococcus and micrococcus cystitis is a primary infection and much more difficult to eradicate. When general and local treatment of a coccus cystitis did not avail, the author decided to substitute for the streptococcus and micrococcus flora a Bacillus coli flora; this made subsequent treatment much more efficacious. The reaction of the urine was of great importance in the process of transition. The following procedures were incorporated: Acidification of the urine was accomplished by diet and the administration, three or four times a day, of from 15 to 20 drops of diluted hydrochloric acid and 0.5 Gm. of methenamine. Local therapy consisted in lavage of the bladder with 3 per cent solution of hydrogen dioxide followed by instillation of 0.5 per cent solution of silver nitrate or 2 per cent solution of strong silver protein. This was continued until the pseudomembrane covering the mucosa disappeared (controlled by the cystoscope). The removal of the pseudomembrane removed the collections of bacteria and urine that prevented the adjustment of the reaction and the action of therapeutic agents. Then followed the injection into the bladder of 10 cc. of a suspension of a twenty-four to forty-eight hour agar culture of Bacillus coli (one billion organisms). The process of acidification of the urine was continued, but the methenamine was entirely discontinued and the local therapy was discontinued for two or three days. Bacteriologic control of the flora governed any necessity for repetition of the injection of the bacterial suspension. When the flora has changed to a monobacterial infection, the acidifying process is discontinued and the usual treatment for colibacillary cystitis is instituted. Lavage of the bladder may or may not precede treatment. Treatment consists of preliminary lavage of the bladder with 0.05 per cent solution of potassium permanganate and instillations with 0.5 per cent solution of silver nitrate or 2 per cent solution of strong silver protein. Once the infection has changed to a colibacillary cystitis, alkali treatment supplants the acidification. It is important to know that acidity of the urine favors the development of B. coli and alkalinity the development of the streptococcus. However, the author remarks that Bacillus proteus may grow equally well in a strongly alkaline or a markedly acid medium. Four case histories (three of chronic cystitis and one of acute hemorrhagic cystitis) are reviewed.

Revue Française de Gynécologie et d'Obst., Paris

***26:** 465-520 (Sept.) 1931*

Dysmenorrhea at Puberty. V. Riche.—p. 465.
*Lysate-Vaccines in Puerperal Infections and Abscess of Breast. P. Brocq and L. Duchon.—p. 483.
Biologic Diagnosis of Pregnancy by Animal Tests. R. Bouc.—p. 505.

Lysate-Vaccines in Puerperal Infections and Abscess of Breast.—In 1926, Duchon proved that Bacillus pyocyaneus in contact with many living pathogenic bacteria such as diphtheria, staphylococcus, streptococcus, pneumococcus and gonococcus demonstrated bactericidal, bacteriolytic and antitoxic properties. He and Brocq explain the phenomena that take place as a state of immunization, active vaccination with development of antibodies, manifested in the body as intense leukocytosis, phagocytosis, decrease or disappearance of the bacterial agents of the focus of infection and tinctorial and morphologic modification of the infecting pathogens. They utilized "lysate-vaccines" prepared by the filtration of cultures of the etiologic organisms grown in contact with pyocyaneus. They have reported elsewhere results in various surgical cases of phlegmons, abscess, lymphangitis and cellulitis as well as medical cases of bronchopneumonia and purulent pleural exudates due to streptococci. The authors report the treatment in eleven cases and the resultant improvement in nine cases of streptococcus septicemias. Thirty patients were treated for abscess and lymphangitis of the breast. Culture of closed abscesses gave pure cultures of hemolytic staphylococci while cultures of open abscesses gave mixed cultures of staphylococcus, streptococcus and other more or less pathogenic organisms, such as common skin pathogens, enterococcus and Bacillus pyocyaneus. The lysate of the staphylococcus was used for the treatment of the closed abscesses and the lysates of the staphylococcus and streptococcus were used for the treatment of the open abscess. The authors used mixed lysate-vaccines, especially in those types of diseases with particularly frequent secondary infections. Lymphangitis of the breast was frequently improved by the application of wet dressings. When lysate-vaccinotherapy was substituted, there was rapid improvement in four or five days. Their studies suggested that there may be a close relationship between uterine and general infection, and that the uterine flora should therefore be studied before labor and before obstetric intervention. Several instances of conat its site of insertion, due to concussion of the brain. In this type of trauma the vault of the skull may or may not have suffered a fracture. In the first case (with fracture of the vault) some cerebral substance is lost through the gap of the fracture. The prognosis for the life of the patient may be favorable if the development of meningitis can be prevented. In the last case of this type of trauma (without fracture of the vault), either the intradural hemorrhage acts as an internal tumor, rapidly causing intracranial hypertension and death of the patient, or it escapes into the orbital cavities through a communication of the skull (provided the concussion produced a slight crack at its base); the victim's life in this case is spared as under the action of a decompressive trephination. However, all these possibilities of saving the victim's life do not minimize in the least the seriousness of this type of hemorrhage. Next in importance is the intradural hemorrhage caused by the section of a branch of the sylvian artery by a cutting splinter. This type of hemorrhage, as well as rupture of the cavernous sinus following a radiating fracture of the base of the cranium is always fatal. The victim either rapidly dies or rapidly falls into coma and dies during the first twelve *hours. In cases of craniocerebral trauma caused by a projectile*, this acts as the traumatic and fracture-causing agent as well as the resecting agent whose principal damage is that caused by the section of the choroid plexuses which determines the profuse hemorrhage into the ventricles.

Siglo Médico, Madrid

88: 249-272 (Sept. 12) 1931

Large Epithelioma of Limbus Corneae: Removal. M. Marin Amat.—*p. 249.*
*Asthma: Intrapulmonary Treatment by Epinephrine. F. Fernández Arratia.—*p. 250.*

Intrapulmonary Treatment by Epinephrine in Asthma.—García Vicente's method, a simple technic for intrapulmonary therapy, was described in the *Deutsche medizinische Wochenschrift* (**54:**1835 [Nov. 2] 1928; abstr. The Journal, Jan. 19, 1929, p. 273). Fernández Arratia used this technic for the intrapulmonary administration of an emulsion of epinephrine and iodized peptone for the treatment of asthma. The only contraindication is the presence of hypersensitiveness to iodine. The mixture for the injections is prepared thus: In a sterilized capsule, from 3 to 10 drops of a 1:1,000 solution of epinephrine, from 5 to 10 drops of iodized peptone (and sometimes from 5 to 10 drops of a 1 per cent solution of jaborandi) are mixed with from 2 to 4 cc. of the substance which is going to be used as a vehicle (such as aromatized oil or eucalyptol). The mixture is given in endobronchial injections, at a temperature of 38 C., either daily or every other day (about eight injections). In a large number of cases treated by the author, the treatment failed only once. In this case, desensitization, climatotherapy, and some other medical treatments also failed. The presence of some lesions of the organs of reproduction was proved in this patient, and sterilization by roentgen irradiations caused relief. The mixture of epinephrine, iodine and jaborandi seems to have an action on the mechanisms of sensitization, by paralyzing the vagus nerve and by stimulating the sympathetic nerves. Among the asthmatic patients observed by the author, tubercle bacilli were not found. The endobronchial treatment of asthma should be given during the intervals between the attacks. The author concludes that asthma is an allergic and anaphylactic disease. Desensitization should be resorted to, though it should be previously determined whether or not the patient has any other disease responsible for the causation of asthma. If so, he should be properly treated; one should remember that the allergens in asthma are represented by the products of the underlying disease. Roentgen rays, desensitization, and surgical and medical treatments, sometimes give good results, while at other times they fail. The technic of endobronchial treatment with epinephrine and iodized peptone is simple and the treatment gives good results. Any general physician may give the injections; anesthesia is not used. When the problems of desensitization are better understood, the combined treatment of desensitization and endobronchial therapy according to the author's method will offer the means of complete recovery *in asthmatic patients.*

Archiv für Klinische Chirurgie, Berlin

166: *361-548* (Sept. 5) *1931*

Intra-Abdominal Cysts. H. Danziger.—p. 361.
**Development and Treatment of Carbuncles.* J. T. Huang.—*p. 372.*
Atresia Ani Urethralis. B. Parin.—p. 386.
*Reflex and Toxic Vascular Shock. N. A. Gurewitsch.—p. 401.
*Callus Formations on Tibia Without Fracture. L. J. Ollonqvist.—p. 412.
Clinical Significance of Congested Gallbladder and Dyskinetic Disturbances in Biliary Passages. I. M. Talman.—p. 425.
Histologic Changes in Epiphyseonecroses: Peculiar Form of Joint-Mouse Formation in Osteochondritis Deformans Juvenilis. G. Brandt and F. Klages.—p. 474.
Typical Injuries of Motorcycle Riders. H. R. Paas.—p. 500.
Practical Significance of Sport Injuries. O. Schmith.—p. 514.
Injection Treatment of Varicose Veins and Its Results. S. Hansen.—*p. 527.*
Genesis and Therapy of Onychogryposis. F. Kazda.—p. 542.
Gangrene of Finger Following Sting by Trachinus Draco (Sting Fish). F. Kazda.—p. 546.

Treatment of Carbuncles.—Huang describes the household remedies that many Chinese employ in the treatment of carbuncles. The author has tried the various methods of treatment that have been recommended in the medical literature of recent years. However, because many of the patients were already in a desolate state, he found that radical treatment was necessary and he resorted to radical excision in the healthy tissue, a procedure which Riedel advocated in 1891 and to which attention had been called in later years by other authors. The excision is done with ethyl chloride anesthesia. Ligation of veins is dispensed with, and a pressure bandage of iodoform gauze is applied. In the further treatment the author takes advantage of the modern methods of shock therapy. He employed this method in uncomplicated carbuncles as well as in carbuncles in diabetic patients. Of fifty-nine patients treated in this manner, two died; the death of one was the result of tetanus, and the other one had for years been subject to cardiac weakness. The diabetic patients all recovered from the carbuncle, and the healing was rapid. The author considers every carbuncle a sign of acidosis and he thinks that, in addition to the total excision, the administration of insulin or of insulin and carbohydrates should not be neglected.

Reflex and Toxic Vascular Shock.—In reviewing the literature on shock, Gurewitsch did not find definite statements on the essential changes in the vascular system in reflex shock; that is, he found no information on the types of vascular changes following stimulation of sensory nerves. In order to solve this problem he made experiments on dogs. On the basis of his observations and the results of other investigators, he classifies the disturbances that are combined under the term surgical (traumatic) shock into two main types: (1) the toxic vascular shock (anaphylactic, infectious, histamine and other forms) with a definite etiology, an exact localization and a clear pathologico-anatomic picture, and (2) the reflex shock, which has the character of a functional disturbance and in which the pathologico-anatomic changes are not clearly defined. According to the mass and type of the injured tissues, to the character and to the intensity of the irritation of the sensory nerve, there may develop either the toxic shock, the typical reflex shock, or a combination of the two types. The severity of the reflex shock is dependent on the condition of the organism and on the severity of the irritation. The irritation of the sensory nerve is accompanied by a marked increase in the blood pressure. After the irritation ceases, the blood pressure sinks below the normal and then gradually returns to normal. The sudden death following intense irritation of the peripheral nerves is not always caused by shock manifestations but may also be caused by changes in the organism which are connected with the abnormally increased blood pressure and which precede the reflex shock. The rapid increase in the blood pressure and the subsequent decrease should be taken into consideration in every surgical intervention on weakened and aged persons, in whom the blood vessels are brittle. The alveolar and the spermatic nerves are much more susceptible than many other sensory nerves and should therefore be treated with especial care.

Callus Formations on Tibia Without Fracture.—As a military physician, Ollonqvist observed a large number of soldiers who had a peculiar disorder of the tibia. He gives *several case reports and also shows roentgenograms.* All of

Methylene Blue Test for Demonstration of Bilirubin.—Following Franke's suggestion that methylene blue (methylthionine chloride, U. S. P.) is a suitable reagent for bilirubin, Seide and Zink employed in examinations of urines, besides the usual tincture of iodine test, also a methylene blue test. They wished to determine whether the positive reaction always indicates disease or involvement of the liver, and also whether the urines containing bilirubin always give the peculiar color reaction when methylene blue is added. To 5 cc. of urine, a 2:1,000 aqueous solution of methylene blue is added drop by drop. If bilirubin is present, the specimen becomes green as soon as a drop of the methylene blue solution is added. It remains green when more drops are added. But as soon as the number of drops stands in a certain ratio to the quantity of bilirubin contained in the urine, the color becomes bluish green and then dark blue. The number of drops necessary to effect a change from green to blue indicates the quantity of bilirubin. Two drops corresponds to 0.1 mg. of bilirubin. The authors designate as strongly positive urine specimens for which more than 10 drops is required to effect the change, weakly positive when from 2 to 10 drops is sufficient to produce the change in color; and if the typical blue color appears when the first drop is added, the reaction is negative. Strongly positive reactions were noted in diseases of the liver with icterus (catarrhal icterus, carcinoma or syphilis of the liver, and cirrhosis), and in stasis of the liver as the result of circulatory insufficiency. A weak positive reaction was obtained in pernicious anemia, lead poisoning, malaria, nephrolithiasis, cholecystitis, cholelithiasis, influenza and slight stasis of the liver. It was observed that the methylene blue test was much more sensitive than the tincture of iodine test, and a positive iodine test in case of a negative methylene blue test was never observed.

Wiener klinische Wochenschrift, Vienna

44: 1209-1236 (Sept. 25) 1931

Resonance Principle of Nervous Activity. P. Weiss.—p. 1211.
*Treatment of Tuberculous Diabetic Patients. H. Kutschera-Aichbergen.—p. 1217.
Results of Somatic Treatment of Dementia Praecox. B. Aschner.—p. 1220.
Indirect Arsphenamine Action. R. Brandt.—p. 1225.
Rectoromanoscopy in Diagnosis of Tumors. G. Singer.—p. 1226.
Bronchial Carcinoma. R. Lenk.—p. 1228.
Symptomatology and Therapy of Acute and Chronic Prostatitis. H. Rubritius.—p. 1228.
Relations Between Diseases of Nose and of Lacrimal Passages. K. Kofler.—p. 1229.

Treatment of Tuberculous Diabetic Patients.—Proceeding from the assumption that the low resistance of diabetic persons to tuberculous infections is perhaps due to a reduction of the sugar consumption of the tissues, Kutschera-Aichbergen attempted in three cases of diabetes and of severe exudative tuberculosis to increase the sugar consumption. When large quantities of carbohydrates and the corresponding amounts of insulin were given, the tuberculosis lost its former malignancy and took an unusually mild course. These favorable experiences in patients in whom progressive tuberculosis concurs with severe diabetes favor a continuation of the therapeutic experiment with a diet that is rich in carbohydrates. Besides the dietetic treatment, collapse therapy should of course not be neglected; on the contrary, in diabetic patients it should be instituted earlier than is usually the case, because in these patients tuberculosis is usually more progressive than in other persons. The author also points out that in diabetic patients the tuberculosis is almost symptomless in the beginning and causes no other clinical disturbances than a reduction of the carbohydrate tolerance. But in spite of this deficiency of symptoms it is usually malignant, and when finally clinical symptoms such as fever become noticeable, the tuberculous process has already reached an advanced stage. The prognosis of the combined tuberculosis and diabetes can be improved if the tuberculous process as well as the metabolic disorder is early recognized and adequately treated from its incipience. Besides the improvement in the tuberculous process the author also noted an increased sugar tolerance. In spite of a greater carbohydrate intake the insulin requirements are now less than they were before, during the time when the patients' carbohydrate intake had been curtailed.

Wiener Medizinische Wochenschrift, Vienna

81: 1389-1420 (Oct. 24) 1931

Allergic Diseases of Nose with Especial Consideration of Hay Fever. G. Hofer.—p. 1391.
Tumors of Testis. R. Paschkis.—p. 1393.
*Syphilis of Urinary Bladder. I. Jovanovitch.—p. 1398.
Clinical Aspects and Pathology of Primary and Secondary Atherosclerosis Pulmonalis with Consideration of Aneurysm of Pulmonary Artery. A. Posselt.—p. 1403.

Syphilis of Urinary Bladder.—According to Jovanovitch, syphilis of the bladder is not as rare as is commonly assumed. It is much more frequent than tuberculosis of the bladder, but it never develops during the primary stage of syphilis, appearing only after the syphilis has become constitutional, and it disappears again, together with the other manifestations of syphilis. First the blood vessels become involved and, since the vascularization of the bladder is most pronounced in the region of the trigon and of the fundus, it is here that vesical syphilis becomes first noticeable. Then the submucosa becomes affected, and only in the more advanced stage does the mucosa become involved. During this stage the vesical syphilis presents the aspects of an ulcerous cystitis with pyuria and hematuria. The fact that the submucosa becomes involved before the mucosa not only aids in differentiating syphilitic cystitis from an ordinary cystitis but also explains why in its beginning stages syphilis of the bladder is painless and does not have any distinctive symptoms, while the normal capacity of the bladder is not reduced. The diagnosis of vesical syphilis is often difficult. It can be based on cystoscopy and on the efficacy of antisyphilitic therapy. If the serologic tests for syphilis are positive, a lesion of the bladder may be considered syphilitic; yet a negative serologic reaction does not necessarily speak against the syphilitic character and other vesical disorders must be excluded before a definite diagnosis is made. In regard to the treatment, the author states that syphilis of the bladder yields only to antisyphilitic therapy. Antiseptic irrigations, electrotherapy and internal treatments are, especially during the beginning stage before the mucosa becomes involved, more harmful than curative, since they irritate the mucosa.

Zeitschrift für Krebsforschung, Berlin

34: 313-418 (Sept. 11) 1931

*Analysis of Tumor Resistance: 1. Studies on Fermentation. N. Waterman.—p. 313.
Id.: 2. Relations Between Lipase Activation, Cytolytic Reaction and Autolysis. N. Waterman.—p. 327.
*Id.: 3. Increased Resistance by Use of Spleen Extracts. N. Waterman.—p. 333.
Experimental Production of Sarcoma in Rats. C. M. Bellows.—p. 348.
Sarcoma in Rats Following Action of External Factors. M. Askanazy.—p. 362.
Remarks on Increased Frequency of Cancer of Lungs. M. Lipschitz.—p. 376.
Diffuse Carcinomatous Lymphangitis of Peritoneum. B. P. Abramsohn.—p. 382.
Cancer Mortality of Pregnant Women and of Puerperas. S. Peller.—p. 394.
Symptomatology of Lymphangitis Carcinomatosa of Lungs and of Pleura. L. N. Goldmann.—p. 405.

Analysis of Tumor Resistance: Studies on Fermentation.—Waterman points out that investigations on the problems of fermentation are of greatest significance for cancer research, for the cancer cell is generally considered the product of fermentative degeneration. Glycolytic degeneration as well as proteolytic degeneration has already been investigated, and the author studies lipatic or fat-splitting processes of the cancer cell. He discusses the significance of the lipatic systems for cell action and cell form and states that the lipatic process represents the coordinated action of ferment and of activator. In the blood as well as in the tissues such an activator is present, and this activator is sensitive to oxidation and to reduction. The lipatic action is accelerated by oxidation and weakened by reduction. Accordingly it may be assumed that in the intracellular mechanism there is a connection between oxidation and lipatic processes. Activator substances can be extracted by various procedures from organs such as the spleen and the lymph nodes. The extract can be purified by segregating the lipatic activator from the substance sensitive to rays. The latter substance can be removed by adsorption.

by being effective after the seventh generation in 100 per cent of the cases, and by consisting exclusively of erythroleukosis cases except for the first generation, with long incubation period, which consists of two mixed myeloid-erythroleukotic cases. Subcutaneous as well as intramuscular inoculation is effective. He is inclined to agree with Furth that the so-called lymphatic leukosis in chickens is not connected with chicken leukosis. The two other forms, erythroleukosis and myeloid leukosis, may be regarded as early and as late manifestations, respectively, of the same pathologic process.

Hygiea, Stockholm

93: 689-736 (Sept. 30) 1931

Intracapsular Cataract Extraction. F. Kugelberg.—p. 689.
*Parathyroids and Calcium Metabolism in Organism. E. Ask-Upmark.—p. 704.

Parathyroids and Calcium Metabolism in Organism.—Ask-Upmark states that, in sixty-three out of ninety-two cases of parathyroid enlargement from the literature or from personal observation, there were diseases of the bones, forty-eight of the cases being instances of osteitis fibrosa generalisata. The parathyroid enlargement, practically always present in this disease, is probably to be regarded as a toxic adenoma primary to the disturbance in the bones and in the mineral metabolism. In the differential diagnosis of osteitis fibrosa generalisata, exploratory operation on the parathyroids should be done if necessary; and palpation of the neck, and particularly determination of the blood calcium are advised in all cases of more generalized involvement of the bones. Removal of the parathyroid adenoma (Mandl) has been done, with improvement in sixteen cases.

Norsk Magasin for Lægevidenskapen, Oslo

92: 677-788 (July) 1931

*Mineral Metabolism in Pregnancy. K. U. and G. Toverud.—p. 677.
*Exposure to Tuberculosis and Tuberculosis Infection in Childhood. H. J. Ustvedt.—p. 696.
*"New" Muscular Tumor: Case of "Myoblast Myoma." O. Berner.—p. 706.
*Case of Keratoconjunctivitis from Acne Rosacea. A. Mohn.—p. 709.
*Two Cases of Purulent Infection with Bacillus Influenzae Pfeiffer. E. Waaler.—p. 715.
*Case of Peculiar Perforation of Esophagus. P. Treider.—p. 721.
Crossed Plate Suture in Median Laparotomies. S. Høyer.—p. 724.
Crossed Plate Suture in Fracture of Patella and Similar Fractures. S. Høyer.—p. 728.

Mineral Metabolism in Pregnancy.—The Toveruds state that the negative calcium and phosphorus balance established by them three years ago in a number of primiparas in the last half of pregnancy seems to occur frequently but disappears after regulation of diet according to the recognized principles for a normal calcium and phosphorus metabolism. The negative calcium and phosphorus balance is experimentally proved to play a decisive part in the bone composition in the new-born, whether the diet deficiency is in vitamins, in the mineral salts calcium and phosphorus, or in both. To what extent pronounced rickets or osteoporosis with slight rachitic symptoms will be more marked in the child will then depend on the nature of the postnatal diet with regard to the important factors for calcification, unless the postnatal diet is so ideally balanced as to repair the inborn deficiency.

Exposure to Tuberculosis and Tuberculosis Infection in Childhood.—Ustvedt concludes from his investigation in Trondheim that even in the first years of school life the infection of Pirquet-positive children in cities occurs mainly outside of house and home. In Oslo as in Trondheim only about one fourth of the children between the ages of 7 and 15 are infected, although it is most likely that all children, at least after the age of 7, have been exposed to infection. This may point to unknown factors active in the threatened organism and temporarily able to prevent infection.

"New" Muscular Tumor: Case of "Myoblast Myoma."—Berner believes that he has lately seen, in a small specimen from the tongue of a young man, an instance of the tumor type described by Abrikossoff. The tumor has an organoid appearance, the connective tissue regularly inclosing the elements, so that pictures are seen which are strongly reminiscent of an alveolar sarcoma. Possibly because of this organoid characteristic, the tumor has no especial tendency to recur, in spite of the apparently marked "immaturity" of the cells. As far as the author knows, metastases have not been described.

Case of Keratoconjunctivitis from Acne Rosacea.—Mohn's patient had had acne rosacea for fifteen years and frequently recurring irritation of the eyes for nine or ten years, with intense rubor in the conjunctiva, without severe pain. A violent rosacea keratoconjunctivitis then set in, with ulcerations advancing to the center. Nonspecific protein therapy was instituted with sterile milk given intramuscularly, 1 cc. the first day, 3 cc. the next, increasing to 5 cc. every other day for a week, then every third or fourth day; in all, seven injections in two weeks. Local treatment of the eyes with resorcinol solution was given, together with treatment of the seborrhea and acne rosacea. Recovery followed.

Purulent Infection with Bacillus Influenzae Pfeiffer.—Waaler's first case was in an infant, aged 20 months, with cold and fever followed by painful swelling of the knee joint and symptoms of meningitis; death occurred after one month. A pure culture of Bacillus Pfeiffer was found in pus from the knee joint and also in the blood. In the second instance, in a man with chronic disease of the maxillary, sphenoid and ethmoid sinuses of fifteen years' duration, B. Pfeiffer in a practically pure state was isolated from the nasopharyngeal discharge. Both strains showed a typical growth of B. influenzae. The first strain gave complement fixation in the serum down to a dose of 0.0125 cc.; the other, down to a dose of 0.05 cc.

Perforation of Esophagus.—Necropsy in Treider's case revealed a slit, 7 cm. long, in the mucous membrane of the esophagus, presumably due to the sharp edge of a prune pit which had lodged in the patient's esophageal stricture and been forced through the membrane by the pressure of the rather stiff sound used by the patient.

Ugeskrift for Læger, Copenhagen

93: 887-914 (Sept. 4) 1931

*Death Following Ambulant Lumbar Puncture. H. Boas.—p. 887.
International Society Against Tuberculosis. K. Faber.—p. 887.

Death Following Lumbar Puncture.—Boas states that death in his case was due to sepsis resulting from a phlegmon caused by the lumbar puncture. The need for careful antisepsis in ambulant lumbar puncture is emphasized.

93: 915-936 (Sept. 10) 1931

Dangers in Deep-Sea Diving. E. W. Johannsen.—p. 915.
Clinical Aspect of Obesity. A. Faber.—p. 918.
*Nupercaine Anesthesia Based on First Fifty Cases. E. Thomsen.—p. 922.
*Case of Death During Nupercaine Anesthesia. P. Kühnel.—p. 924.
*Case of Acute Nupercaine Intoxication. S. With.—p. 925.
*Some Cases of Silicosis Among Women Employed in Manufacture of Abrasive Powder. S. V. Gudjonsson.—p. 926.

Nupercaine Anesthesia Based on First Fifty Cases.—Thomsen used a 1:1,000 solution of nupercaine as a local anesthetic in various major and minor operations. Epinephrine was not added. He considers nupercaine an excellent local anesthetic in most cases. An instance of grave intoxication following the application of nupercaine points to the need of considerable care in its use.

Death During Nupercaine Anesthesia.—In Kühnel's patient, a girl aged 16, with Little's disease, spasms set in shortly after the injection of a dose of nupercaine well under the maximum according to the literature, and death occurred one hour after the start of injection. The case is regarded as a warning to use general anesthesia as far as possible in operations on patients with Little's disease.

Acute Nupercaine Intoxication.—In With's patient with exophthalmic goiter, the subcutaneous injection of 35 mg. of nupercaine in Heidenhain's anesthesia was followed by violent intoxication. Intradural injection was excluded, and the result is ascribed to the intravenous injection of 10 mg. of nupercaine at the most. Care is urged in deep injections in regions where there are chances of a partial intravenous injection.

Silicosis Among Women Employed in Manufacture of Abrasive Powder.—Gudjonsson reports six fatal cases of silicosis among women working for years, under primitive conditions, in the manufacture of scouring powder. Of the two survivors, one has marked silicosis; in the other, employed for five or six years, silicosis is not yet clinically demonstrable.

tenderness in the right upper quadrant. A roentgenogram (fig. 6) revealed a dense shadow conforming roughly to the outline of the gallbladder but incorporating irregular areas of greatly reduced density suggestive of bile pigment-cholesterol stones. Roentgenograms taken after administration of tetiothalein sodium showed no change in the shadow. At operation March 15, 1927, a thickened gallbladder was found contracted on stones with a stone obstructing the orifice of the cystic duct. Cholecystectomy was performed. On longitudinal section of the gallbladder its wall was found to be slightly thickened. There was a small amount of turbid fluid in the gallbladder that was not bile stained. The rest of the space was occupied by calculi. There was a soft oval white calculus 6 cm. long occupying the central portion. A small white calculus occupied the tip of the fundus and a brown calculus was wedged in the orifice of the cystic duct with a white cap on its gallbladder side. Three small brown pigment stones lay free alongside the large stone. The large soft white stone was found to contain several mottled grayish brown bile pigment-cholesterol stones on the inside.

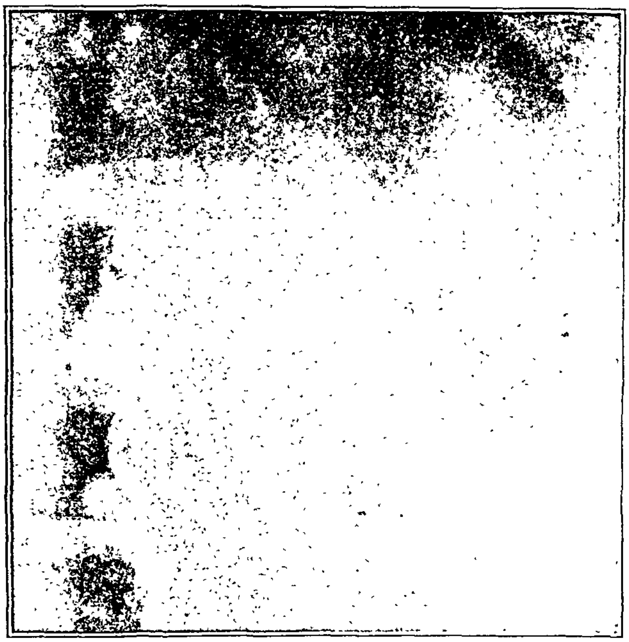

Fig. 1 (case 1).—Shadow in gallbladder region, April 23, 1928.

Cultures of the fluid in the gallbladder were negative. Microscopic examination of the wall showed moderate thickening with loss of mucous membrane and villi over about nine tenths of the surface lining. At irregular intervals there were small stretches of mucosa and of glands embedded in the deeper tissue. There was moderate fibrosis and round cell infiltration of the wall. Chemical analysis of a portion of the white material comprising the largest stone gave the following results: calcium carbonate, 75 per cent; calcium phosphate, 2 per cent; cholesterol, trace; bile pigment, 0; organic matter the remaining portion.

A summary of the observations in the remaining five cases follows:

CASE 3.—A man, aged 65, had had mild attacks of gallstone colic at intervals for seven years. A roentgenogram showed a dense shadow in the gallbladder region of the shape and size of the gallbladder. Cholecystectomy was performed by Dr. E. M. Miller at the Presbyterian Hospital. There was a stone impacted in the cystic duct and a large one in the gallbladder. The gallbladder wall was moderately thickened. The lumen contained a small amount of yellowish green fluid and a grayish oval stone measuring 6.5 by 2.5 cm. with a brown pigment stone incorporated and showing at one end. The stone weighed 18.258 Gm. Chemical analysis of the gray stone revealed calcium carbonate, 80 per cent, calcium phosphate, 0.46 per cent; bilirubin present, and cholesterol absent. Because of the bile stained character of the fluid and interior of the stone there must have been some bile entering the gallbladder past the stone in the cystic duct.

CASE 4.—A man, aged 32, had mild attacks of pain in the right upper quadrant at intervals for one year. He was never jaundiced or febrile. A roentgenogram showed a large dense cup-shaped shadow in the region of the fundus of the gallbladder with a smaller ring shaped shadow proximal to it. There was no change in the gallbladder shadow after injection of tetiothalein sodium.

At operation, stones were found in the contracted gallbladder and one in the cystic duct. Cholecystectomy was performed. There was 8 cc. of turbid mucous fluid very slightly bile stained. Chemical analysis of the fluid showed the following: p_H, 7.195; carbon dioxide, 5.55 volumes per cent; calcium, 163 mg. per hundred cubic centimeters; phosphorus, a trace. The gallbladder contained an oval white stone 2.5 by 1.25 cm. with two small bile pigment stones embedded on one side. Chemical analysis of the white material revealed: calcium carbonate, 74 per cent; calcium phosphate, 3.1 per cent; bile pigment and cholesterol, present in traces. There was a smaller cholesterol stone present which showed a calcareous deposit on one side. Cultures from the gallbladder wall yielded anhemolytic streptococci.

CASE 5.—A woman, aged 26, had attacks of pain in the right upper quadrant at intervals for two years. A roentgenogram showed a large, somewhat irregular, dense shadow in the gallbladder region. No change occurred in the gallbladder shadow after administration of tetiothalein sodium. Cholecystectomy was performed. There was a stone impacted in the cystic duct near the common duct. The slightly contracted and thickened gallbladder, on being opened, was found to contain a milky white semisolid mass embedded in which were six small white stones. Cultures were negative. A chemical analysis of the white deposit showed it to be composed largely of calcium, but no attempt was made to determine the amounts of carbonate or phosphate present. The white stones were calcium carbonate.

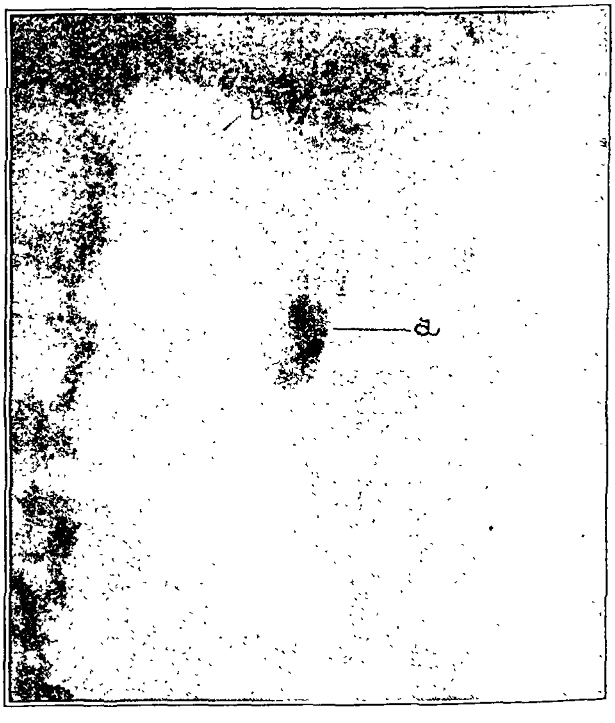

Fig. 2 (case 1).—Shadow in regions of (*a*) gallbladder and (*b*) cystic duct, May 31, 1930.

CASE 6.—A woman, aged 31, had had attacks of pain in the right upper quadrant for five months. She had no jaundice or fever. Examination showed slight tenderness in the gall-filled with a mortar-like mass of calcified thick secretion, and by Volkmann, who found the duct obstructed in one case.

No explanation has been found for the selective excretion of calcium carbonate over long periods of time in such cases, giving rise to these large white masses. It may be that it occurs only when the inflammatory process and the obstruction are of certain degrees of severity and chronicity. Certain it is that in most cases of cholelithiasis with cystic duct obstruction and hydrops, calcium carbonate stones are not formed. In the cases here reported the inflammation appeared to be mild and chronic and there was no history pointing to the previous existence of a severe acute cholecystitis. Wilkie[3] reported that, when he produced cholecystitis in rabbits by bacterial injection and ligated the cystic duct, gallstones rich in calcium were formed but that, when the duct was not ligated, stones composed of cholesterol formed. Naunyn[4] asserted that the calcium carbonate of all gallstones is poured out in connection with the mucin formed by the epithelium of the gallbladder. This is supported by the fact that the only other calculi consisting of as high a percentage of calcium carbonate are found occasionally in the salivary ducts[5] and in the pancreas,[6] where there is also mucous secretion.

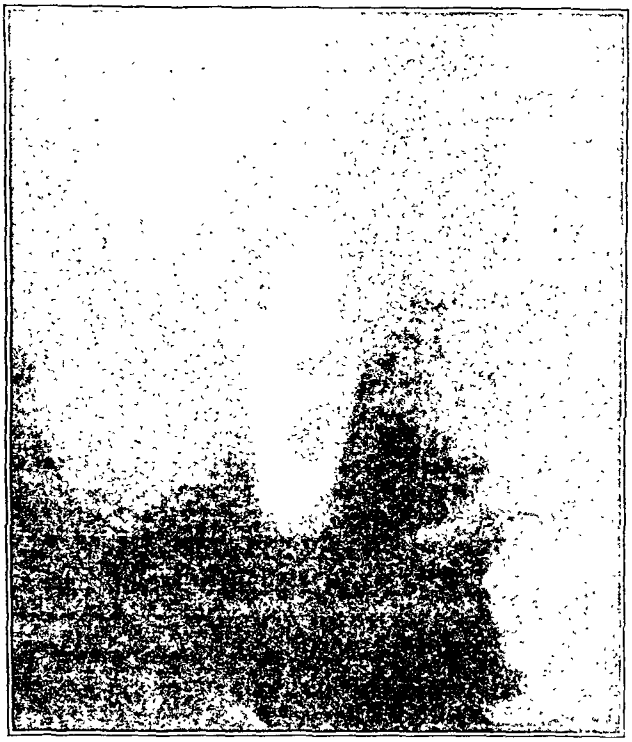

Fig. 6 (case 2).—Appearance before administration of tetiothalein sodium. The dense shadow is due to calcium carbonate, and the negative shadows are due to incorporated cholesterol and bile pigment stones.

The question arises as to whether or not the calcium carbonate deposited in layers on cholesterol or mixed cholesterol-bile pigment stones is excreted by the gallbladder during periods of temporary obstruction of its outlet.

CALCIFICATION OF THE GALLBLADDER

In cases of chronic calculus obstruction of the cystic duct with extensive degeneration and fibrosis there may be calcification of the gallbladder wall and of the wall of the cystic duct about the impacted stone. In three autopsy specimens that have been studied the cystic duct was completely blocked and the epithelial lining and glands of the gallbladder were entirely destroyed. The wall of the gallbladder was converted into fibrous tissue and the calcareous deposits were irregularly distributed throughout it. The wall of the cystic duct and the surface of the stone were fused by a calcareous deposit where they were in contact. In the gallbladder shown in figure 7 a chemical analysis of the calcareous deposit showed that it consisted almost entirely of calcium phosphate, which amount is unusually high for calcified tissue, although this process has the appearance of ordinary calcification of degenerating tissue. In a fourth case of calcification of the wall of the gallbladder the cystic duct was not obstructed by a stone but the gallbladder lumen was filled by a large stone and the cystic duct was obliterated by fibrous tissue at its orifice so that no bile entered the gallbladder. A review of articles on calcification of the gallbladder by Robb,[7] Talbot,[8] and Fowler[9] brings out the fact that the cystic duct was obstructed either by stone or by scar tissue growing over its orifice in nearly all the reported cases, although no special attention was called to the relationship between the obstruction and the calcification. In none of our cases was there found a combination of a calcium carbonate stone in the lumen of the gallbladder and calcification of the gallbladder wall, but Robb has reported a case which from the illustration appeared to be such. Robb believes that in some cases hypercontraction is produced by the stones, leading to fibrosis and calcification of the walls.

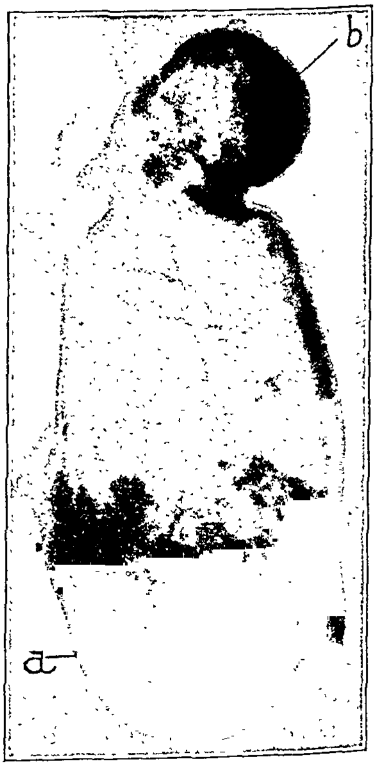

Fig. 7.—Roentgenographic appearance of specimen; cholesterol-pigment stone obstructing cystic duct with calcification of (*a*) wall of gallbladder and (*b*) wall of cystic duct and surface of stone.

CONCLUSIONS

1. Large calcium carbonate stones may form in the gallbladder in cases of cholelithiasis and cholecystitis with chronic obstruction of the cystic duct by a stone, and it appears that duct obstruction is essential for their formation. The calcium is apparently excreted by the mucosa of the gallbladder.

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[3] Wilkie, A. L.: The Bacteriology of Cholecystitis: A Clinical and Experimental Study, Brit. J. Surg. **15**: 450 (Jan.) 1928.

[4] Naunyn, B.: Die Gallensteine, Jena, 1921.

[5] Besanez, G.: Lehrbuch der physiologischen Chemie, 1874; quoted in Roberg: Sialolithiasis, Ann. Surg. **39**: 669, 1904.

[6] Rosenthal, M.: Ein Beitrag zur Kenntnis der Lithiasis pancreatica, Arch. f. Verdauungskr. **20**: 619, 1914.

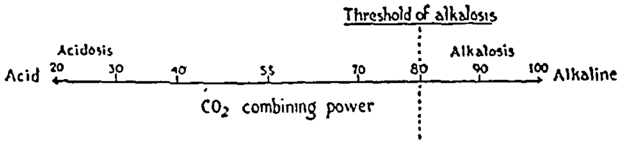
[7] Robb, J. J.: Observations on Calcification of the Gall Bladder with the Presentation of a Case, Brit. J. Surg. **16**: 114 (July) 1928.

[8] Talbot, P.: Cholelithiasis: Notes on a Case with a Calcified Gall Bladder, Brit. J. Surg. **8**: 533 (April) 1921.

[9] Fowler, W. F.: Calcareous Changes of the Gall Bladder Wall, Ann. Surg. **78**: 623 (Nov.) 1923.

Then there is a distinct change in the character of the drainage. The biliary discharge becomes less and less in amount and more watery in consistency. In spite of the constantly diminishing jaundice, as shown by the decreasing icteric index, the patient becomes delirious; there is marked cerebral excitation, subsultus tendinum and carphology occur and finally stupor and coma. There is no clinical evidence of intra-abdominal hemorrhage or infection, yet in spite of a diminishing jaundice, coma develops, which in all of its clinical manifestations is similar to that which occurs in a terminal cholemia. By reason of the marked cerebrospinal irritation, spinal puncture has been made and practically normal fluid obtained with a slight globulin reaction and cell count of 9 or 10 cells per cubic millimeter. What has been the effect of the more or less sudden removal of the common duct obstruction? Have we induced a secondary acute reactive hyperemia in an already compromised liver? Do the liver cells function for a short time postoperatively and then fail?

Type 3 occurs much less frequently than either type 1 or type 2 and apparently is more amenable to treatment. These patients have diseases of the common duct and pancreatitis, do not have jaundice, and for the first twenty-four to thirty-six hours after a choledochotomy with T tube drainage have an apparently normal postoperative course. Then the pulse rate becomes markedly accelerated. The patient becomes markedly prostrated, with a fall in blood pressure and a cessation of urinary secretion, and exhibits cold, clammy, moist extremities. The abdomen is without any clinical evidence of infection, hemorrhage or any unusual postoperative abdominal condition. A negative gastric lavage demonstrates an empty stomach and no gastric dilatation. One is impressed that while the clinical condition herein presented is very similar to shock it occurs from twenty-four to thirty-six hours after the operation and seems to be a complete vasomotor collapse from an overwhelming intoxication, probably of pancreatic origin. Transfusion and repeated infusions of physiologic solution of sodium chloride with 10 per cent dextrose are usually sufficient to save the patient.



An increase in the carbon dioxide combining power toward 80 indicates an alkalosis; the reverse, an acidosis.

From a practical point of view, the acid-base balance of blood plasma should be accurately determined preoperatively in all cases of gallbladder disease.

In the postoperative treatment of gallbladder cases, chief consideration should be given to the following:

1. A continuous and persistent effort should be made to combat the dehydration. This is best accomplished by using known quantities of fluid, through all channels —water with 10 per cent dextrose in the form of the rectal drip, physiologic solution of sodium chloride with 5 per cent dextrose by hypodermoclysis and physiologic solution of sodium chloride with 5 or 10 per cent dextrose solution intravenously. If the carbon dioxide combining power tends to the left, indicating a condition of acidosis, the dextrose is particularly beneficial because in the oxidation of dextrose there is a destruction of the ketogenic bodies. If the carbon dioxide combining power moves to the right, indicating an alkalosis, the administration of dextrose is primarily to prevent dehydration and in an important but secondary rôle to prevent protein destruction.
2. When vomiting is a conspicuous feature, with or without tetany, gastric rest should be maintained by an indwelling intranasal (Levine) tube.
3. If symptoms of tetany appear, 5 cc. of a 10 per cent solution of calcium chloride is given intravenously and repeated in eight hours if necessary.
4. Sodium bicarbonate should not be used in any form. As sodium bicarbonate is frequently employed for gastric lavage, it is particularly important to bear this point in mind.
5. It is essential to make repeated chemical determinations of the blood to control or indicate further therapy.

116 East Fifty-Third Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. PHEMISTER, REWBRIDGE AND RUDISILL, AND DR. HEYD

Dr. Damon B. Pfeiffer, Philadelphia: Dr. Phemister's contribution is another example of the fact that the cholecystogram is not an infallible indicator of the presence or absence of a surgical lesion of the gallbladder. This is not said in detraction of this valuable test, but the knowledge that false positives and negatives exist should sharpen the attention of the radiographer and the clinician. Dr. Heyd has drawn attention to a group of fatalities not readily explainable under the common causes of death. In some it seems probable that the outcome is due to some derangement, not thoroughly understood, of certain essential hepatic functions. It is well to appreciate the dangers that lurk in operations on individuals with a damaged liver. I should deprecate, however, the too facile adoption of such terms as "liver death" or "liver shock" to cover such deaths as appear mysterious and unexplainable. I suspect that some are not due to disordered hepatic chemistry but to fulminating infection of a sort not readily demonstrable. It is realized, as Dr. Heyd has said, that some of these deaths are due to disturbance of the acid-alkali balance of the blood, a condition that is usually preventable, and often remediable if recognized promptly and treated appropriately. I urge the more general adoption of his advice to employ the laboratory aids in detecting and in treating intelligently such chemical abnormalities. Alkalosis is especially liable to occur in connection with upper abdominal surgery. In all cases of so-called gastric dilatation or prolonged vomiting this condition occurs to a greater or less degree. The stomach tube, abundant fluids, sodium chloride, and dextrose are the specifics. In this type of surgery I am constantly exhorting interns to keep the stomach empty and the circulation full. There are exceptions to all rules. I have a patient, operated on for a gallbladder condition, a large man, who reacted badly to anesthesia and vomited profusely for three days. He had a high fever and low urinary excretion. Clinically I should have thought that he would exhibit alkalosis. To the contrary, the laboratory showed that he had an acidosis, which was explainable by the fact that he had renal insufficiency. The retention of abnormal acids more than counterbalanced the loss of acid in the stomach contents, to which the alkalosis is usually due. The warning against the use of sodium bicarbonate as a routine measure for gastric lavage or rectal instillation is important. I am glad the routine sodium bicarbonate rectal instillation has gone into the discard. Acetone in the urine does not mean acidosis. It may be present in alkalosis, in which case alkali treatment would greatly increase the danger. To a certain extent it is no longer necessary to postulate unknown chemical disturbances to explain clinical disorders. A more general use of recent contributions to blood chemistry is of great importance to the surgeon.

Dr. I. S. Ravdin, Philadelphia: Dr. Phemister and his associates have presented an extremely interesting pathologic

NEUROLOGIC SYNDROMES ASSOCIATED WITH HYPOGLYCEMIA *

ARCHIE D. CARR, M.D.
ST. LOUIS

Hypoglycemia as the cause of a variety of neurologic pictures has been most forcefully brought to attention during the past year by the coincidence of several similar cases which appeared in Barnes Hospital. One of these, which was referred to us with a previous diagnosis of epilepsy, was found to show a classic picture of hypoglycemia caused by an adenoma of the pancreas.[1] It was possible to demonstrate and remove the adenoma, with the disappearance of hypoglycemia and the clinical cure of the patient. A patient of Womack, Gnagi and Graham,[2] in whom an adenoma of the pancreas was demonstrated, had had periods of confusion and convulsive movements for over a year, had been placed on phenobarbital and considered as a brain tumor suspect. Another case,[3] diagnosed as syphilis of the nervous system, terminated fatally in convulsions. At autopsy a small adenoma of the pancreas was found.

ETIOLOGY AND INCIDENCE OF HYPOGLYCEMIA

Evidence accumulated during the past few years has demonstrated that hypoglycemia is by no means a rare condition. In its study, various workers have rather arbitrarily placed the fasting blood sugar level at figures ranging from 70 to 90 mg. per hundred cubic centimeters of blood, the most generally accepted level being 70 mg. or lower.

Since the discovery of insulin, values for blood sugar below normal levels have been described in a number of pathologic conditions. Seale Harris,[4] in 1924, first hypothecated a "hyperinsulinism" which should produce a definite picture of hypoglycemia and its concomitant symptoms. At that time he reported three cases with fasting blood sugar levels from 47 to 67 mg. per hundred cubic centimeters which showed weakness, ravenous hunger and nervousness. Harris advanced the idea that hyperactivity of the islands of Langerhans causes the sensation of hunger and a greatly increased consumption of carbohydrates.

Experimentally, many drugs having a toxic action on the liver, such as chloroform, phosphorus and hydrazine, will produce a hypoglycemia apparently secondary to the decreased glycogen store in the liver. Removal of parts or all of the liver causes a marked or fatal hypoglycemia.

Porges,[5] working with cats, states that the removal of the suprarenals is followed by a hypoglycemia reaction.

Jonas,[6] in his survey of the literature, pointed out that hypoglycemia is found associated with so many conditions that it may be ascribed as a causative factor in the production of weakness and easy fatigability.

Holman[7] cites three cases, one in detail, which, twenty-four hours following subtotal thyroidectomy, showed low blood sugars with symptoms of semistupor, extreme restlessness and marked weakness. He calls attention to the fact that the immediate effect of the active thyroid substance is to produce a tremendous increase in general body metabolism, necessitating a utilization of all the available carbohydrates, including the glycogen reserve in the liver and in the muscle tissues. Eventually, if sufficient active substance has been taken up by the circulation, the consumption of all available carbohydrate takes place and hypoglycemia supervenes.

Schwarz,[8] in 1926, reported a case in which a patient in late pregnancy suffered from moderate hyperthyroidism. This patient, following a sugar tolerance test, showed a series of low blood sugars with complaints of weakness, nervousness and periods of anxiety. He suggested that these lowered blood sugars could be accounted for by a combination of two factors: the storage of carbohydrates by the fetus during late pregnancy and the depletion of glycogen stores consequent on the hyperthyroidism.

During the past few years, several authors have presented cases of hyperinsulinism due to disease of the pancreas. In 1926, Warren[9] was able to collect fifteen cases of benign tumors of the pancreas and report five of his own. In his series he studied only the pathology, with no correlation of clinical and pathologic data. Margaret Smith,[3] in searching for the cause of death in a patient who had been known to have syphilis, found an adenoma of the pancreas. Blood sugar as low as 58 mg. per hundred cubic centimeters had been recorded in this case.

Wilder and his co-workers[10] stimulated interest in hypoglycemia and hyperinsulinism by their classic study of a case of carcinoma of the pancreas. It was demonstrated that the hypoglycemia was definitely associated with an overproduction of insulin and its constant liberation into the blood stream.

Thalhimer and Murphy[11] report a case of adenoma of the pancreas, demonstrated at autopsy, which occurred in a patient who, for two and a half years, had suffered from attacks of stupor which had been complicated by epileptiform seizures during the year before death. At no time during the observation of this patient had the blood sugar been over 60 mg.

McClenahan and Norris[12] likewise reported a case of adenoma of the pancreas demonstrated at autopsy, in which hypoglycemia was present. Howland and his co-workers[13] reported the first cure by removal of a tumor of the pancreas in a patient with hypoglycemia.

Allan[14] and others have reported cases of hypoglycemia not necessarily due to focal disease of the pancreas, yet presenting as characteristic a picture. Hartmann,[15] in 1929, added a case in a man, aged 43, with blood sugars as low as 32 mg., who died with symptoms suggesting hypoglycemia.

Waters[16] reported three cases of paroxysmal tachycardia associated with hypoglycemia and repeats the belief that prolonged high carbohydrate diet stimulates

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* From the Department of Neurology of Washington University and the Barnes Hospital.

* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

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[13] Howland, Goldwin; Campbell, W. R.; Maltby, E. J., and Robinson, W. L.: Dysinsulinism, J. A. M. A. **93:** 674-679 (Aug. 31) 1929.

[14] Allan, F. N.: Hyperinsulinism, Arch. Int. Med. **44:** 65-70 (July) 1929.

[15] Hartmann, F. L.: M. Clin. North America **12:** 1035 (Jan.) 1928.

[16] Waters, W. C., Jr.: South. M. J. **24:** 249 (March) 1931.

seems possible that in our patient this mechanism might have been responsible for spontaneous recovery after fairly long periods of stupor.

In this discussion it is not intended to imply that idiopathic epilepsy or other common neurologic conditions have reduced blood sugar or that hypoglycemia is a frequent cause of amnesia or hemiparesis. It is apparent, however, that mistakes may easily occur and that the early recognition of this condition is of the utmost importance. The symptoms which have been detailed are so distinctive that they can hardly be missed if the condition of hypoglycemia is considered at all. Most important in the diagnosis, therefore, is to have the condition in mind. To confirm or reject the suspicion of hypoglycemia, it is only necessary to determine the blood sugar level, which today is so simply performed that it should not be omitted in any doubtful case.

SUMMARY

No matter what the cause, hypoglycemia may be manifested by stupor, amnesia, muscular twitching or convulsions and a number of less striking symptoms, such as restlessness, weakness, anxiety and fatigability.

Diagnosis of various functional and organic nervous diseases may be made if the condition of hypoglycemia is not considered.

The diagnosis of hypoglycemia depends on a careful history of preceding symptoms, the recognition of coexisting diseases and, above all, the determination of the blood sugar level.

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ABSTRACT OF DISCUSSION

Dr. Eugene F. Traut, Chicago: Dresel produced hypoglycemia by stimulating the vagus and caused hyperglycemia by stimulating the splanchnics. Some hold that the hypoglycemic symptoms are due to overaction of the suprarenals, an effort of the organism to reestablish its blood sugar equilibrium. The pallor, rise in blood pressure, and dilated pupils substantiate this. The usual immediate sequence of an insulin reaction is a rise in the blood sugar. The symptoms consequent on lowering of blood sugar depend on whose blood sugar one lowers. I have intentionally produced lowering in patients in certain conditions. I have lowered the blood sugar to 46 mg. per hundred cubic centimeters without producing any symptoms at all. Children stand a low blood sugar much better than do adults. A school teacher, aged 36, had taken large doses of insulin with varying diets over a long period. She experienced frequent attacks of headache, dizziness and diplopia before her meals. She had showed slight edema of the disks. She was referred to a neurologic surgeon, and under exact control of diet and reduction of insulin the signs and symptoms disappeared. A child, aged 4 years, entered the hospital in a deep coma from acidosis. Large doses of insulin were employed. Acetone bodies disappeared from the urine. The coma continued, but her body became spastic. There was opisthotonos. She had strabismus, dilated pupils and positive Babinski signs. The diagnosis of tuberculous meningitis was considered, as the spinal fluid sugar level was normal. There was, however, no pleocytosis. Reduction of the insulin brought her out of the coma. Her right hand and arm were paretic for many weeks. Apraxia of the right hand persists. A man, aged 64, had had both legs removed at the thigh for diabetic gangrene, thus reducing the body volume considerably. On discharge from the hospital he was given a diet. He was not seen until two years later and within those two years, retaining that diet and dosage of insulin, he had changed personality. He was irritable and, at times, violent. Morphine failed to control him. Withdrawal of the insulin abolished the symptoms. He remained sugar-free. Dr. Carr's diagnosis, followed by the successful removal of the causative pancreatic neoplasm, should serve to emphasize the necessity of more frequently considering the possibilities of hypoglycemia in patients showing suggestive symptoms.

Dr. Frank N. Allan, Rochester, Minn.: The symptoms attributed to hypoglycemia do not always correspond to the level of the blood sugar. In diabetic patients treated with insulin the symptoms sometimes appear when the blood sugar is not subnormal; in fact, they may occur when the blood sugar is above normal. I have seen distinct symptoms of hypoglycemia with the blood sugar above 0.3 Gm. per hundred cubic centimeters. On the other hand, a subnormal level of the blood sugar may exist without the appearance of any symptoms. The blood sugar may be as low as 0.04 Gm. per hundred cubic centimeters without any symptoms. There is need for investigation to determine the exact cause of the symptoms which are attributed to hypoglycemia. In the diagnosis of hypoglycemia it must be remembered that, if a test of the blood sugar is made at a time when the symptoms are not present, the condition may be overlooked. At the onset of hyperinsulinism, the blood sugar may be unstable; it may be normal, or even much above normal after food is taken. Even the fasting blood sugar test made in the ordinary way may be practically normal. In some cases it may be necessary to have the patient miss his meals and undergo strenuous exercise in order to induce the appearance of the symptoms and make recognition of hypoglycemia possible. After our experience with the case studied at the Mayo Clinic four years ago, in which a tumor of the islands of the pancreas was found, it was thought that early recognition of similar cases and early operation might lead to cure of the condition. This hope was realized when Howland, Campbell, Maltby and Robinson at Toronto reported their case two years ago. Since that time three cases of hypoglycemia, including the one described by Dr. Carr, have been cured by removal of a tumor. The prospect of cure by surgical treatment is not always so satisfactory. To my knowledge, operations have now been performed on ten patients with hyperinsulinism. In five a tumor has been found; in four it has been removed successfully with cure. In five cases the pancreas has appeared normal. Resection of part of the pancreas has brought about some benefit, but there has not been complete cure.

THE RÔLE OF THE FEMALE SEX HORMONE *

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To describe the rôle of the female sex hormone ten years ago would have been a simple matter, as this hormone alone would have had to be considered, the main attention then being focused on the corpus luteum.[1] Four years ago the situation became more complicated when Philip Smith,[2] and almost simultaneously Zondek and Aschheim,[3] showed that the prepituitary was necessary to activate the ovaries. A further complication was added when Hisaw [4] discovered an aqueous corpus luteum factor which affected the pubic ligaments of the gopher, and Corner [5] concenwill be further limited to the group of cases in which we have studied the hormone content of the blood and excretions.

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* From the Gynecological Service and Department of Laboratories, the Mount Sinai Hospital.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Iscovesco, H.: Les lipoïdes du corps jaune: Leur rôle dans l'involution post-puerpérale de l'utérus, Compt. rend. Soc. de biol. **73:** 189, 1912. Fellner, O. O.: Experimentelle erzeugte Wachstumsveränderungen am weiblichen Genitale der Kaninchen, Zentralbl. f. allg. Path. **23:** 673, 1912. Frank, R. T., and Rosenbloom, J.: Physiologically Active Substances Contained in the Placenta and in the Corpus Luteum, Surg., Gynec. & Obst. **21:** 646, 1915.

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[5] Corner, G. W., and Allen, W. M.: Physiology of the Corpus Luteum: II. Production of a Special Uterine Reaction (Progestational Proliferation) by Extracts of the Corpus Luteum, Am. J. Physiol. **88:** 326 (March) 1929.

In order actually to confine the survey to these groups, it is first necessary to exclude organic causes such as tumors (especially fibroids) or infection of the genital tract. Next, we have found it essential to discover whether patients who show disturbances in their sexual sphere are free from other demonstrable endocrine disease, such as the well understood classic syndromes, for example, Froehlich's dystrophia adiposogenitalis, thyroid overactivity or underactivity (recognizable as exophthalmic or toxic goiters, and myxedema) for in these conditions the genital disturbances are usually secondary. I have purposely tried to eliminate these secondarily genital deviations, as far as possible, in order to simplify the already sufficiently complicated problems encountered.

Among the primary functional diseases of the female, hyperfunctional conditions have proved most difficult to analyze. They include bleeding, either excessive in amount or too frequent in occurrence, or a combination of the two, often accompanied by symmetrical enlargement of the uterus.

The hypofunctional conditions, on the other hand, can be classified under the general headings of amenorrhea (also oligomenorrhea) and sterility, which embrace the large majority of cases. Rarely, continuous bleeding is noted in patients whose hormonal examination has convinced us that the underlying disturbance is of hypofunctional nature. This apparently anomalous phenomenon emphasizes the fact that little or nothing is known about the actual mechanism of menstruation, which until recently has been ascribed to the abrupt withdrawal from the circulation of the female sex hormone, with consequent changes in nutrition of the stimulated endometrium, manifested by bleeding.[16] According to the most recent work of Hartman,[17] however, it would appear that menstruation can be brought on in the castrate by prepituitary hormone alone.

Whether the finding of a small number of red blood cells in the vaginal washings can be regarded as "menstruation" in the rhesus monkey (which species normally, as well as after preliminary female sex hormone injection, menstruates freely for several days) requires further confirmation.

In addition to the usual clinical examinations, which, in those cases which are worked up, include a careful history, anthropometric measurements, basal metabolism, differential blood count, and, when indicated, sugar tolerance, sellar roentgen and visual field examinations, certain hormone tests should be performed.

This does not signify that every patient with menorrhagia and metrorrhagia of short duration, or every obese patient with amenorrhea is put to the trouble and inconvenience of having to submit to all these tests. Were this the routine, both patient and physician would have just cause for complaint of the overemphasis on laboratory investigation. On the other hand, the patient who bled from her fourteenth to her twenty-eighth year, during which time she was thrice curetted, repeatedly subjected to radium application, and referred to internists, gynecologists and psychoanalysts without ever having a basal metabolism and blood hormone tests made, had just cause for complaint.

The hormone tests which I advocate in properly selected instances include the evaluation of the female sex hormone blood level throughout a cycle, or, if no periodicity exists, over a period of from five to six weeks, with simultaneous determination of the hormone excretion through the urine. For the last six months we have extended our studies to the prepituitary hormone in the blood and urine, but are not as yet prepared to consider these data conclusive.[18] The technics are now sufficiently standardized to permit the study of a considerable number of cases each month in small laboratories not possessing special equipment.

A brief summary of the technic of these tests should suffice, as detailed descriptions are accessible elsewhere.[10]

FEMALE SEX HORMONE TEST OF THE BLOOD[19]

In testing for the female sex hormone, advantage is taken of its preferential solubility in lipoid solvents. The standard amount of blood used is 40 cc., which is dried with anhydrous sodium sulphate and fully extracted with ether. The ether soluble residue is injected into castrate mice, whose vaginal spread is examined according to the method described by Allen and Doisy.[20]

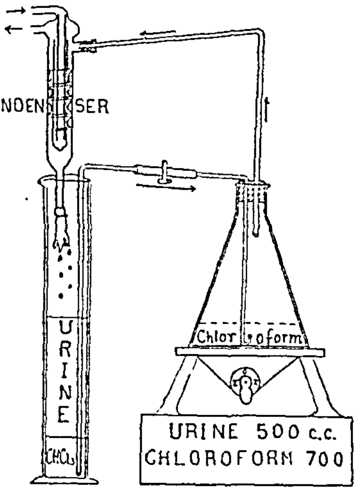

Fig. 3.—Apparatus for the automatic extraction of female sex hormone from the urine: The chloroform in a 2 liter flask on an electrical hot plate is distilled over and drips through the urine, collecting at the bottom of the cylinder. By siphonage it is returned to the flask, a 100 cc. turnover taking place every three minutes.

In the fully normal, fertile woman, one mouse unit can be demonstrated in 40 cc. of blood from seven days before the menses to the onset of menstruation (fig. 5 *A*).

FEMALE SEX HORMONE TEST OF THE URINE

After Loewe[21] had shown that the female sex hormone appears also in the urine, our attention was increasingly directed toward the amount excreted through the kidneys. We use a simple technic consisting of automatic continuous extraction by means of chloroform, which, if run for ten hours, completely extracts the hormone (fig. 3). By running a combined sample (500 cc.) of the total urine collected over three days, injecting the chloroform residue corresponding to 100, 75, 50 and 30 cc. of urine, the number of mouse units per liter (M. U. L.) from 10 to 30 are quickly determined. If larger amounts of hormone are demonstrated by these preliminary tests, injection of smaller doses of extract supplies the necessary data.

We have found that a normal woman excretes at least from 800 to 1,500 mouse units during an entire cycle. Two periods of maximum excretion correspond to the time of ovulation and from one to two days before menstruation (fig. 5 *A*).

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typical cyclic variations, or be of the stationary hyperplastic type.[28]

Underfunction.—The hormone tests have proved most instructive in the study of hypofunctional conditions. The two main complexes, roughly classified according to the most striking clinical symptom, include amenorrheas and sterilities. The hormone investigations have shown that these general groupings include a variety of conditions.

Amenorrhea: Among the amenorrheas, three main types can be recognized. The first consists of amenorrheas with a definite blood cycle which, however, never reaches normal levels and which, therefore, I have called a "subthreshold cycle."

(*a*) Subthreshold blood cycle. These patients at more or less regular intervals show an accumulation of hormone in the blood, which, however, rarely reaches beyond 2 +, which, in our studies, we consider the lower limit for positive reactions. Such patients usually also show a typical urine curve with increase of excretion at the time approximately coinciding with follicle ripening or ovulation, and another period which must be compared with the premenstrual time, although bleeding does not occur (fig. 5 *B*).

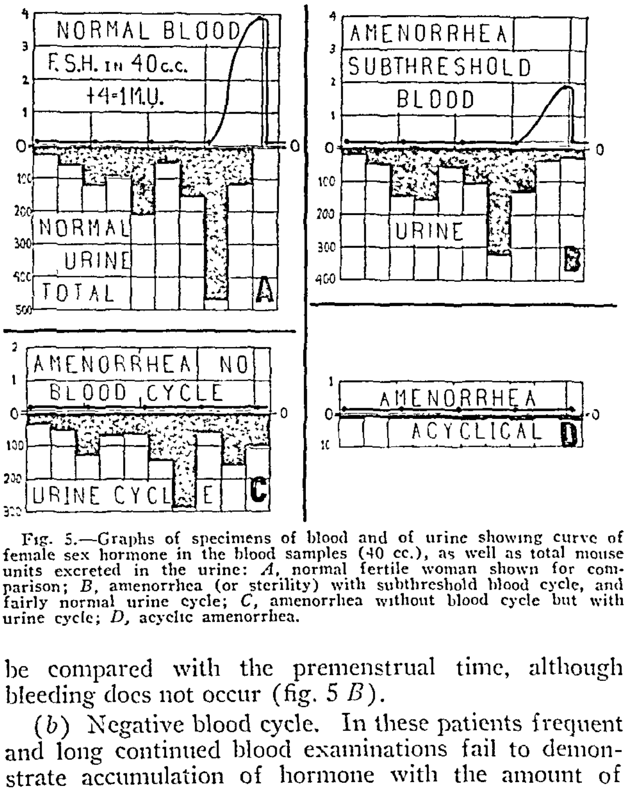

Fig. 5.—Graphs of specimens of blood and of urine showing curve of female sex hormone in the blood samples (40 cc.), as well as total mouse units excreted in the urine: *A*, normal fertile woman shown for comparison; *B*, amenorrhea (or sterility) with subthreshold blood cycle, and fairly normal urine cycle; *C*, amenorrhea without blood cycle but with urine cycle; *D*, acyclic amenorrhea.

(*b*) Negative blood cycle. In these patients frequent and long continued blood examinations fail to demonstrate accumulation of hormone with the amount of blood investigated (40 cc.). On the other hand, an excess of hormone is found in the urine over long periods of observation. We have been forced to explain this condition as due to an abnormal permeability of the kidney, in other words, a low renal hormone threshold, which contrasts sharply with some "premenstrual tensions" in which the renal threshold is abnormally high (fig. 5 *C*).

(*c*) Acyclic amenorrheas. In these, neither the blood nor the urine shows demonstrable quantities of female sex hormone (fig. 5 *D*).

Clinically these groups are indistinguishable, good subthreshold blood cycles having been demonstrated in patients with absent vaginas who have never menstruated. On the other hand, in acyclic individuals, the amenorrhea may have existed for only a short period, and yet the prognosis is poor.

Sterility: In every case of sterility spoken of in this connection, semen studies of the husband have shown potency, and mechanical (tubal stenosis) as well as inflammatory causes could be excluded. Among this group only a small number show normal hormonal conditions.

The majority of menstruating sterile women either show a subthreshold blood cycle (fig. 5 *B*), such as was described under amenorrheas, or negative blood conditions with urinary cycle present (fig. 5 *C*). Those cases in which sterility is combined with amenorrhea are explained by the hormonal changes accompanying the amenorrhea.

In the sterile types, also, the grouping and prognosis depends almost exclusively on the hormonal observations. However, as our experience has increased, stigmas noted in the individuals in whom these various hormonal changes have been studied enable us to predict with some degree of assurance what hormonal deviations may be expected. Lack of space prevents me from enlarging on this important phase of our investigations.

A generalization based on these hormone studies makes it evident that circulatory hormonal overcharge may result either from overproduction of the hormone or from hormonal underexcretion. In an analogous way, an undercharged circulation may be due to underproduction, overexcretion, or cessation of function.

Therapy.—With the preceding observations in mind, I feel justified in concluding that the present methods of therapy are not only illogical but in many instances scandalous. Some may be unaware of the widespread prevalence of dosing patients with inert commercial products. The point has been reached at which physicians, who in other disciplines of medicine are scrupulous, careful and sane, in this field prescribe ready made products solely characterized by number, containing heterogeneous mixtures of inert substances which include all but the hoof and hide of our domestic animals.

While such products as thyroid substance, insulin and parathyroid produce striking and concordant results in appropriate cases, the opposite applies even to the few potent extracts used in the genital sphere.

Our hopes have been dashed because of the fact that the potent female sex hormone does not cause the anticipated therapeutic results. This is fully explained since we recognize that this now purified substance acts solely on the tubular tract and, according to competent testimony,[29] when given in large doses over long periods, eventually causes sclerosis of the ovaries.

My investigations with all the supposedly potent anterior lobe preparations commercially obtainable have proved negative, as has also been found by Jannsen.[30] Attempts to utilize the high prepituitary hormone titer of pregnancy blood by means of transfusion appears nullified by the complete and rapid excretion noted by Erhardt.[31]

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[28] Frank, R. T.: Gynecological and Obstetrical Pathology, ed. 2, New York, D. Appleton & Co., 1931.

[29] Kunde, M. M.; D'Amour, F. E.; Gustavson, R. G., and Carlson, A. J.: Effect of Estrin Injections on Reproductive Organs, Hypophysis, Kidney, Adrenals, Thyroid and Blood Vascular System, Proc. Soc. Exper. Biol. & Med. **28**: 122 (Nov.) 1930. Hauptstein, P.: Zum Wirkungsmechanismus des Sexual (Follikel) Hormons, Endokrinologie **8**: 169, 1931. Leonard, S. L.; Meyer, R. K., and Hisaw, F. L.: The Effect of Oestrin on Development of the Ovary in Immature Female Rats, Endocrinology **13**: 16; **15**: 17 (Jan.-Feb.) 1931.

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[31] Erhardt: Transfusion of Pregnancy Blood, Verhandl. d. Deutsch. Gesellsch. f. inn. Med. 42d congress, 1930, p. 87.

other functions, both metabolic and vasomotor. In the course of this paper another activity of progestin, in relation to the excretion of the ovarian follicle hormone, will be presented. Since the anterior portion of the hypophysis contains a hormone which stimulates growth of the corpus luteum, it is assumed with much supportive evidence that the production of progestin is conditioned by the presence of this luteinizing hormone.

In the human menstrual cycle the progestin secreted by the active corpus luteum following ovulation normally prevents further ovulation and brings about the characteristic premenstrual, secretory changes in the endometrium, the ovarian follicle hormone, estrin or folliculin, being a necessary factor in this process. The decrease in progestin toward the end of the cycle is followed by menstruation. To account for the rise and cadence of the corpus luteum and the concomitant variations in progestin, it is necessary, for the present, to postulate that when the graafian follicle reaches a certain stage in its growth under the influence of the gonad-stimulating hormone of the anterior hypophysis there takes place increased hypophyseal activity, with consequent ovulation and luteinization. Further, since progestin inhibits ovulation and also inhibits the action of pituitary transplants in causing maturity in rats,[3] it apparently depresses the pars anterior. It may be, therefore, that the regression of the corpus luteum is due to depression of the pars anterior by progestin.

Fertilization of the ovum is the normal occasion for survival of the corpus luteum and the continued action of progestin, which prevents menstruation and causes increased proliferation of the endometrium, sensitizing it for implantation of the ovum and decidual formation. This situation accompanies the appearance in the blood and urine of large amounts of the luteinizing hormone, the production of which is taken over from the anterior hypophysis by the trophoblast and later by the placenta. Although death of pregnancy in experimental animals follows the removal of progestin by ablation of the corpus luteum, in human beings pregnancy has been known to progress normally after early ovariectomy. Apparently, progestin is not a necessary factor for survival of pregnancy once placentation has occurred. This point is further borne out by the well known regression of the corpus luteum after the middle of gestation. In this connection some factor other than decrease of the luteinizing hormone must be sought to explain the regression of the corpus luteum in late pregnancy, for there is still much luteinizing hormone so long as the placenta survives. On the same basis, some factor other than progestin must account for the usual inhibition of ovulation in later pregnancy and lactation.

Although menstruation normally follows on the withdrawal of progestin, Hartman's[4] work on monkeys would indicate that the flowing is actually the positive effect of anterior pituitary activity in the presence of the folliculin accumulated during the previous cycle. It has already been stated that the follicle hormone is necessary for the endometrial proliferation caused by progestin. *Thus folliculin, produced under the influence* of the gonad-stimulating hormone of the anterior hypophysis, and progestin, produced under the influence of the luteinizing hormone of the same gland, are both synergistic and antagonistic. In their simplest form some abnormal conditions in the female reproductive phases are due to a lack of balance between these four factors. For example, insufficient gonad-stimulating activity by the pars anterior or inadequate ovarian response would make for amenorrhea or scanty menstruation and sterility. Evidence of this insufficiency is the genital hypoplasia so common in these cases, indicating too little follicle hormone, one of whose functions is to cause uterine and vaginal growth. Further, an abnormally persistent corpus luteum would also account for sterility and amenorrhea. This situation simulates the condition of pseudopregnancy as seen in animals. Administration of the gonad-stimulating hormone is indicated under these circumstances to override the corpus luteum, but as yet no potent preparation for clinical use has become available. The follicle hormone has been tried quite extensively, with only slightly encouraging results. We have used it in the form of theelin[5] and a crude but potent extract of urine from pregnant women, with partial and uncertain benefit. Giving this hormone alone would not be expected to remedy these conditions unless it activated the anterior hypophysis, but definite evidence of this is lacking. On the other hand, sterility might follow if the anterior hypophysis were too active, overriding progestin and causing menstruation before the fertilized ovum could become implanted.

By the same process of reasoning, abnormal menstruation may result from excessive activity of the gonad-stimulating hormone or excessive follicular response or from insufficient production of the luteinizing hormone or inadequate supply of progestin from the corpus luteum. Although, undoubtedly, other endocrine and constitutional factors are involved, administration of the luteinizing hormone or progestin is indicated. There is still no clinical preparation of progestin. We have given intramuscularly in various doses the luteinizing hormone, prepared from the urine of pregnant women by the method of Evans.[6] To date, eight patients with too frequent and excessive menstruation have been treated, causes for flowing other than endocrine having been eliminated. All were definitely relieved; one of these had dysmenorrhea also and was relieved. It is interesting that one patient complained of hot flushes following treatment. The luteinizing hormone failed to stop the flowing in a case of fibroids. Three other cases have been treated, with relief: a case presenting nausea and fainting spells at the time of menstruation, a case of pelvic inflammation with flowing, and a case of endometriosis with pain and flowing, unrelieved by previous conservative operation. It is still too soon to regard these early results as more than hopeful, but they indicate beneficial results following administration of the luteinizing hormone, either through a direct effect or through stimulation of progestin.

On the same basis, it was reasoned that insufficient progestin, by failing to maintain the decidua and thus impairing the vitality of the ovum, might be a factor in miscarriage. Seven other patients, from two to six months pregnant, were given the luteinizing hormone in total doses of from 50 to 100 cc. over periods ranging from five to twenty days. Of these, four were flowing, two were flowing and vomiting, and one was vomiting. All were managed clinically as cases of threatened miscarriage. In six, all flowing and vomiting ceased within ten days. The seventh patient had a marginal placenta praevia and was delivered. Three patients have since

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[3] Hisaw, F. L.; Meyer, R. K.; Fevold, H. L., and Leonard, S. L.: Anat. Rec. **44**: 205, 1929.

[4] Hartman, C. G.; Firor, W. M., and Geiling, E. M. K.: Am. J. Physiol. **95**: 662 (Dec.) 1930.

[5] The Doisy crystalline preparation supplied by Parke, Davis & Co.

[6] Parke, Davis & Co. and Dr. E. A. Sharp of that company cooperated in supplying us with this and other preparations.

Following ovulation, the corpus luteum is formed. In the human being this structure functions irrespective of the act of copulation. In the uterus at this time (from sixteen to twenty-two days after the cessation of menstruation) numerous tufts or papillae project into the glands. The nuclei of the epithelial cells assume a more central position. There are no mitoses and there is no pseudostratification. The stroma cells increase in size and form a compact layer in the upper portion. Later, around the twenty-fifth day, the edema becomes quite marked. From this brief description it can readily be seen that the changes occurring in the human being are very similar to those found in the mouse.

The ovary has two known secretions, one first observed by Frank [4] and later studied more fully by Allen.[5] This has usually been called the "female sex hormone." In our opinion, it is more aptly designated as "estrin." Allen and Corner [6] have isolated another hormone, derived from the corpus luteum, which, when injected into rabbits, causes changes similar to those found in pseudopregnancy. By means of this extract of the corpus luteum, Allen and Corner have further been able to maintain pregnancy after the removal of the ovaries. Frank [4] has also shown that the estrus-producing hormone can be found in detectable amounts in the blood of human beings, beginning on the fourteenth day and increasing until menstruation.

It is fairly clear, then, that the changes preceding ovulation are the result of the estrous hormone and that the changes following ovulation are the result of the combined action of these two hormones. It is from this point of view that we have approached the problem of interpreting hyperplasias. These conditions have been thought to be the result of an ovarian dyscrasia, but it has not previously been possible to determine the type of this dyscrasia from the curettings.

Schroeder,[7] Shaw [8] and Graves [9] have all noted that, in their cases of Swiss cheese hyperplasias, no corpora lutea were found and that the ovaries were cystic. From this work the logical inference is that hyperplastic changes are the result of the unopposed action of estrin. We [1] have been able to confirm this hypothesis by comparing specimens of hyperplasia with the endometrium of spayed mice which had been injected with extracts of estrin and of corpus luteum and with a combination of the two. From these comparisons it was possible to demonstrate specific histologic pictures characteristic of each hormone.

Sections from twenty-eight cases of Swiss cheese hyperplasia were studied in the light of these comparisons and were found to be quite similar in many respects to the normal human endometrium of the sixth to the fourteenth day and to the endometrium of a mouse which had been injected with estrin. The Swiss cheese pattern is one of the most striking features of human hyperplasia but is not, in our opinion, of as great significance as the more minute changes of stroma edema, glandular pseudostratification and epithelial mitoses which are common in the estrin phase of the normal human cycle, in hyperplasia of the endometrium and in spayed mice injected with estrin. We have also observed two cases of typical Swiss cheese hyperplasia in which the ovaries contained no corpora lutea but did contain cysts of the graafian follicles. The fluid from these cysts was injected into spayed animals with the production of estrus. The endometrium of these experimental animals was quite similar to that seen in the respective human cases from which the fluid was obtained. From these observations we feel that it is legitimate to conclude that hyperplasia of the endometrium results from an unopposed action of the estrus-producing hormone.

The easiest and simplest explanation of an unopposed action of estrin is that the patient has failed to ovulate, since without ovulation there can normally be no corpora lutea. This failure to ovulate may be due to a breakdown in the inherent mechanism of ovulation or to simple mechanical conditions, such as inflammatory thickening of the tunica albuginea or to dense adhesions. These conditions prevent rupture of the follicles.

It has long been thought probable that some other organ played a part in the ovarian cycle. Experimental evidence of this was presented independently in 1927 by Smith and Engle [10] and by Zondek and Aschheim.[11] These changes have been confirmed repeatedly. Ovulation was a variable feature of the phenomena. Friedman [12] has shown by transplantation experiments that ovulation is the result of some humoral mechanism. Knauer [13] had previously come to the same conclusion. Fee and Parkes [14] hypophysectomized rabbits within one hour after copulation and found that ovulation did not occur. In connection with this experiment it should be borne in mind that the rabbit does not ovulate spontaneously but only after copulation. Smith and Engle [15] found that anterior hypophyseal tissue taken from guinea-pigs in the estrous period had relatively little capacity to increase the size of the ovary, while glands taken from animals in diestrus were more potent in this regard. These observations suggested that there might be a variation in the amount of the hormones secreted by the anterior lobe of the hypophysis during the different phases of the estrual cycle.

This contention was further strengthened by a series of experiments carried out in this laboratory.[16] Female rats were divided into experimental and control groups. The animals of both groups were spayed two weeks before the specific experiments were carried out. The animals in the experimental group received a series of six subcutaneous injections of an alcoholic extract of human placenta (given at twenty-four-hour intervals). The hypophyses of the animals of each group were transplanted into immature female mice as test animals. The ovaries of the mice receiving anterior lobe tissue from the injected rats were much larger than those

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4. Frank, R. T.: The Female Sex Hormone, Springfield, Ill., Charles C. Thomas, 1929.

5. Allen, Edgar; Byron, F. F.; Robertson, L. L.; Colgate, C. E.; Johnston, C. G.; Doisy, E. A.; Kountz, W. B., and Gibson, H. V.: The Hormone of the Ovarian Follicle: Its Localization and Action in Test Animals, and Additional Points Bearing upon the Internal Secretion of the Ovary, Am. J. Anat. **34:** 133-181 (Sept.) 1924.

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9. Graves, W. P.: Some Observations on the Etiology of Dysfunctional Uterine Bleeding, Am. J. Obst. & Gynec. **20:** 500-518 (Oct.) 1930.

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11. Zondek, Bernhard; and Aschheim, Selmar: Hypophysenvorderlappen und Ovarium, Arch. f. Gynäk. **130:** 1-45, 1927.

12. Friedman, M. H.: The Mechanism of Ovulation in the Rabbit: I. Demonstration of the Humoral Mechanism, Am. J. Physiol. **89:** 438-442 (July) 1929.

13. Knauer, E. C.: Die Ovarientransplantation, Arch. f. Gynäk. **60:** 322-375, 1900.

14. Fee, A. R., and Parkes, A. S.: Studies on Ovulation: I. The Relation of the Anterior Pituitary Body to Ovulation in the Rabbit, J. Physiol. **67:** 383-388 (July) 1929.

15. Smith, P. E., and Engle, E. T.: Evidence of a Correlation Between the Amount of Gonadal Stimulating Hormone Present in the Pituitary of the Guinea-Pig and the Stage of the Reproductive Cycle, Anat. Rec. **46:** 38 (March) 1929.

16. Burch and Cunningham (footnote 2).

In our hypophysectomies we have not used a technic which subjects the animals to a severe trauma, such as does decerebration, but one which leaves them in an essentially healthy condition. It seems unnecessary to describe the operative procedure in detail. It will suffice to state that an oral approach through the soft palate is used. The capacious blood sinus in which the pituitary lies, surrounded by its dense capsule, is injected with warm bone wax. The capsule is then exposed and opened, and both lobes of the pituitary are removed with a cannula and negative pressure. It is not a blind operation, all essential structures being visible. There is little bleeding. The animals show a good recovery and usually remain in excellent condition. Ten successful operations have been performed and the total removal of the anterior and posterior pituitary confirmed by a study of serial sections of the contents of the sella. Periods of from one and a quarter to seventeen hours elapsed between mating and the actual removal of the pituitary. In each of seven of the animals, both ovaries were inspected and one of them was removed for sectioning about twenty-four hours after hypophysectomy, the second ovary being removed twenty-four hours later. In each of two of the animals, one ovary was removed four days and the other eight days after the hypophysectomy. In every case, ovulation occurred, even though the pituitary was removed within an hour and a quarter after the mating. Since follicular growth and maturation will not take place in the absence of the pituitary gonad-stimulating hormone, it is evident that the stimulus afforded by copulation has caused, by some at present unknown mechanism, an immediate and considerable discharge of this hormone. This response is striking and gives a conception of the anterior pituitary as a secretory-labile and responsive structure, which in spontaneously ovulating forms, prior to ovulation, may pour out its stored secretion by some releasing mechanism.

The second phase of our study concerns the essentiality of a pituitary secretion for the complete development and function of the corpus luteum. Our work confirms the observation of Deanesly, Fee and Parkes that corpus luteum formation takes place in rabbits even though the pituitary has been removed but a short time after mating and, consequently, several hours before ovulation has taken place. The corpora in such animals twenty-four hours after hypophysectomy (from fifteen to thirty hours after ovulation) appear to be normal, nor is there a slowing in the rate of development compared with unoperated controls, as noted by the previously named investigators. This is probably due to the fact that our operation left the animals in excellent condition, whereas their procedure led to the death of the animal within a period of from one to two days. Even in the ovaries removed at the end of the second day after hypophysectomy, or from fifty to fifty-five hours after mating, the corpora show no striking developmental failure as compared with the normal controls.

The lutein cells are large and typical in appearance, though apparently not quite as numerous as in the controls. The corpora have consequently a somewhat larger central cavity.

In the two animals in which the left and right ovaries were removed four and eight days, respectively, after hypophysectomy, the corpora show, however, a contrast with the normal. In those removed after a period of four days it is evident that little growth beyond that of the second day has taken place. Although there are many normal appearing lutein cells present, they are not as numerous as in the controls, and the central cavity is consequently much larger. The number of connective tissue cells in proportion to the lutein cells is much greater than normal. In the ovaries removed eight days after hypophysectomy the corpora have regressed. They appear avascular and small. They contrast markedly with the normal, which is larger and highly vascular and in which there remains but a remnant of the central cavity.

It is thus evident that after hypophysectomy the corpora will develop with little or no deviation from the normal for a period of approximately two days. They undergo this development without any postovulatory secretion of the hypophysis. Furthermore, since most of the animals were virgins, there is no possibility of any postovulatory pituitary secretion being still present from previous ovulation. That they will not undergo complete development under these conditions, however, is evident from the ovaries removed at four and eight day periods.

In order to see the effect on the completely formed corpora, a twenty-two day pregnant rabbit was hypophysectomized, one ovary being removed four days and the other eight days later. This animal aborted some of the fetuses on the third to the fourth days. When a laparotomy was performed on the fourth day, there were three dead fetuses in the uterus. The corpora, which have been shown to be essential to gestation in experimental animals, in this rabbit showed avascularity and regression when the animal was opened on the fourth day. So far as can be demonstrated by a single experiment, it is apparent then that the secretion of the anterior pituitary is essential for the functional maintenance of the corpora. Their regression may be primarily responsible for abortion which follows pituitary ablation.

COMMENT

In view of the well known effect of certain extracts (alkaline) of the hypophysis on the formation and maintenance of corpora lutea,[3] it is not surprising that complete development of the corpora failed in the absence of the hypophysis. The finding that they would develop for a period in excess of two days in the absence of any postovulatory secretion of the hypophysis was unexpected. That such is the case would seem to have some bearing on the problem of whether the anterior pituitary secretes only one or more than one hormone which act on the ovarian constituents. This problem has invariably been considered and its experimental solution attempted by noting the effects of the administration of pituitary implants or of extracts which have been made in different ways. Some of this work will be briefly mentioned. In work reported earlier by one of us,[4] it was found that injections of a saline supension of beef hypophyses prevented the restorative effects of implants on the ovaries and testes of hypophysectomized rats. Later, Evans and Simpson[5] reported that such injections prevented the

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[3] Evans, H. M., and Long, J. A.: Characteristic Effects on Growth, Estrus and Ovulation Induced by the Intraperitoneal Administration of Fresh Anterior Hypophyseal Substance, Proc. Nat. Acad. Sc. **8**: 38-39, 1922 Teel, H. M.: The Effects of Injecting Anterior Hypophyseal Fluid on the Course of Gestation in the Rat, Am. J. Physiol. **79**: 170-183 (Dec.) 1926. Shelesnyak, M. C.: The Production of Placentomata in Young Rats Following Gonadal Stimulation with Pituitary Implants, Am. J. Physiol. **98**: 387-393, 1931.

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Sixty years ago it was still held that menstruation constitutes a preparation for the reception of the egg, which, it was held, was discharged at or about the menstrual period. The entire theory of menstruation started with this assumption. After much painstaking labor on the part of the gynecologist it is now known that ovulation occurs almost exactly in the middle of the cycle. On this fact there was immediately elaborated another far-reaching theory of menstruation which emphasizes the ovarian factor, the corpus luteum, or rather its degeneration, as the cause of menstruation, a *post hoc, propter hoc* theory which in its turn is quite devoid of any experimental proof. The theory is still in vogue, however, despite the fact that the work of Heape, van Herwerden, Corner and Allen has shown that the corpus luteum is unessential to the menstrual rhythm. A large mass of material from the Carnegie monkey colony, shortly to be published, involving hundreds of menstrual cycles, precisely diagnosed as to whether ovulatory or nonovulatory, should finally convince the student of the problem that an extra-ovarian factor is involved in the menstrual flow. Clinically the uterine bleeding is undifferentiable whether it occurs from a 12 mm. hard, interval type of uterus, accompanied by a "resting" ovary, or from a 22 mm. soft, succulent, vascular organ produced under the stimulus of a corpus luteum.

The challenge to point out the extra-ovarian factor concerned in bleeding was met by the Carnegie Laboratory through a cooperative piece of work (Hartman, Firor and Geiling), in which the possible rôle of the anterior pituitary was analyzed. It was found that uterine bleeding which the ovarian hormone produced when injected into monkeys (Allen) was ineffective when injected into the hypophysectomized animal, whereas in such, as in normal animals, anterior lobe substance in any form always caused bleeding. These experiments mark a beginning in the analysis of the process.

But the problem is not a simple one. To the biologist it has broad ramifications. He thinks of menstruation as just one more form of uterine bleeding which begins, as shall be shown, with the cartilaginous fishes and therefore goes back far into geological time. Perhaps the essential physiology of menstruation has a more venerable history than has been imagined.

In the monkey there are many types of uterine bleeding. Aside from the postpartum hemorrhage, the bleeding presaging abortion, and different types of pathologic bleeding, there are as regular or frequent occurrence: (1) menstruation with ovulation; (2) menstruation without ovulation; (3) the placental sign or bleeding of implantation, and (4) the intermenstrual or mittelschmerz bleeding. Leaving out the last as the more obscure (the probable homologue of the estrous bleeding of dogs and cows), I am tentatively considering menstruation and the placental bleeding as homologous; that is, conditioned by the same physiologic factors. The close connection between menstruation and reproduction, on which three profound students of the problem, Robert Meyer, Robert Schröder and Emil Novak, have insisted, thus attains a new significance. The fact is that throughout the vertebrate series, wherever the embryo lives in a brood chamber at the expense of the parent beyond the point to which the stored yolk of the egg carries it, there one finds bleeding into the brood chamber. This is true of man and of monkey, the "menstruating" forms that have a particularly hemorrhagic type of implantation; it is true of other forms having a burrowing type of placentation, such as lemurs, carnivores and rodents; and it is equally true of the nondeciduates, like the sheep and the cow. In many of these the bleeding into the uterine cavity has been described and the erythrocyte content of the "uterine milk" studied (Bonnet, Kolster). Because of the widespread nature of the phenomenon, its students have ascribed to the hemoglobin and its derivatives a *nutritive function, probably most often* a means of conveying iron, perhaps at times conveyance of oxygen itself.

Passing to the predominantly egg laying classes of vertebrates (fishes, amphibia, reptiles, birds) one finds that, in all except the birds here and there, in species, genera or even whole families, life habits have become associated with viviparity, intra-uterine or intra-ovarian development, even to the extent of yolk sac or allantoic implantation. Here one encounters the same story over and over again: where the embryo depends for development beyond the egg stage on the mother's (or the father's) body substance, there one may find in the brood chamber red blood cells mingled with the pabulum provided by the nutritional organ.

With the exception of certain brood pouches as the back of the Surinam toad, the gular pouch of Darwin's toad, the pouch of the male sea-horse and pipe-fish, the nutritive organs are the derivatives of the müllerian duct. This is practically the only mucous membrane in the body through which the passage of red blood cells is a physiologic process. Is this under the control of the anterior lobe? If so, this gland already shows a difference of function in the pregnant and in the nonpregnant shark. This principle is susceptible of test by experiment on the appropriate species.

From among the great variety of conditions under which the embryonic nutrition is effected in the various truly viviparous fishes and amphibia, let us select three:

1. Many eggs of *Salamandra atra* are shed into the oviduct, but only one or at most two embryos are destined to develop and to be born; the survivor lives at the expense of the abortive eggs, swallowing them bodily as it floats in the embryotrophic "soup" provided by the oviduct. This semifluid mass is laden with red blood cells, according to Wiederscheim to provide oxygen directly to the embryo.

2. In the stingray *Pteroplatea* there grow out from the uterine wall long slender threads (trophonemata) which are highly vascular and covered with secreting glands. These strands enter the gill-slits of the embryo, hang into the gut and become not stomach tubes but secretory stomach villi. Their secretion feeds the embryos. Red blood cells find their way into the uterine cavity and the embryonic intestines.

3. *Zoarces*, a bony fish, has an intra-ovarian method of reproduction in which the spent follicles or corpora lutea literally and directly feed the developing embryo. The phenomenon is a kind of diagrammatic representation of the so-called trophic function of the corpus luteum of pregnancy, postulated by some writers on the corpus luteum. The shed eggs of *Zoarces* remain within the ovary, held in place by the emptied follicles, which metamorphose into corpora lutea in the form of secretory villi. They become greatly injected by capillaries, which form veritable retia mirabilia. Secretion increases according to the needs of the growing embryos, which remain within the ovarian chamber until birth. In the embryotrophic substance of the ovarian chamber and in the gut of the embryo, red and white blood cells are found in numbers. Stuhlmann thinks

is similar to human menstruation, or that the two primates will necessarily respond in a similar way to glandular products. In 1926, in this section at the Dallas meeting, I reported the injection of the follicular hormone in women and noted at that time that one could get definite evidence of growth of the uterus. I had hoped to be able also to report bleeding, but in many attempts there has been no evidence of menstruation being reproduced by the injection of theelin; in many observations, however, the evidence of growth has been repeated. So far as I can see clinically, the only thing that one can expect to get from theelin is growth of the uterus. There have appeared in the literature reports ascribing beneficial results from the use of theelin in dysmenorrhea and in combating symptoms of the menopause. In my experience this conclusion is not justified, for equally good results may be obtained by injection of sterile water, or by other psychotherapeutic measures. For, after all, the symptoms of most dysmenorrheas and the menopause are largely psychic. The suggestions in the symposium give great hope for future therapy, but a great deal of work is necessary to translate the results of animal experiments into terms of human therapy.

Dr. M. A. Goldberger, New York: Our interest has been mainly in studying the occurrence of the female sex hormone, as we call it and the anterior pituitary hormone, in the human female. The first chart that Dr. Frank showed might be emphasized; in this the method of extraction of the female sex hormone was graphically produced. Whereas previously we used to throw the blood sludge away after the female sex hormone was extracted, we are now able to use that sludge and extract the anterior pituitary hormone.

Dr. Charles Mazer, Philadelphia: The degree of uterine development should be the main guide in the administration of female sex hormone or estrin. The product does not exert any action on the ovaries. It does, however, produce growth and vascularity of the uterus. If the uterus is normal in size, the existing condition is usually due to failure of the second phase of the ovarian cycle, luteinization, for which the luteinizing hormone of the anterior lobe of the pituitary gland should be administered. In my experience, low voltage irradiation of the ovaries and pituitary gland is the most effective agent in restoring menstrual periodicity. The functional menorrhagias and metrorrhagias likewise respond to this treatment.

Dr. Robert T. Frank, New York: I pity the clinician—and I am one—if he attempts to translate into clinical medicine what the advance guard is feeling out in physiology. We have had a great disappointment in that theelin (I think that it is time to adopt one name and, in deference to Dr. Doisy's epoch-making discovery of crystallization of this product, I think we might use that name) works harmfully on the ovary. I cannot see how it can act in a stimulating fashion, and I predict that we shall meet with similar disappointments when we have a commercially active product to use on the human being. Dr. Smith and Mr. White brought out that the amount of a hormone that one finds in a gland is no indication whatever of the amount that it is secreting into the circulation. Dr. Allen mentioned or referred to a change in threshold of the kidney toward the excretion of theelin. The work in our laboratory has definitely shown such a change in threshold, as we reported last year in several papers. Whether any other explanation can be found is yet to be seen. The time has also arrived to call a halt in ascribing every part action of a hormone to a special hormone. For instance, to have collected eleven factors for the prepituitary is carrying the thing to an extreme. Further study will probably show that simplification is possible. Our old concept, at least our old histologic concept, of menstruation should be kept up for the time being until we have a more definite conception of what the exact mechanism of the menstrual bleeding is. Finally, I want to call attention to a clinical application. The physician who would not think of treating a patient with thyroid extract in a thyroid disturbance or in any disturbance of metabolism, without making a basal metabolism determination, the physician who insists on taking frequent samples of blood to note the sugar level in a case of diabetes or suspected diabetes, or the physician who insists on electrocardiograms in every case of organic and functional heart disease still seems to balk and hesitate in applying these blood and urine hormone tests, which are available and which are comparatively simple, in clinical and in functional disturbances of the genital system, otherwise entirely indistinguishable and readily confused with one another.

Dr. Philip Edward Smith, New York: I want to say a word about the proposal of Dr. Allen that the female sex hormone or follicular hormone be called "theelin." This is a patented product and it appears to me improper to use in our scientific papers a patented name to designate an active principle. The matter of patents affects the investigator, the practitioner and the public. There is at present a general and unfortunate tendency to patent all products discovered in the laboratory. The assurance that pharmaceutic houses will place on the market properly standardized products is important, but is it getting at the problem in the proper way for the investigator to patent his discoveries? I am not referring particularly to theelin, which is the least objectionable of the examples. Should the investigator or the laboratory or the university levy tribute from the public for these discoveries? There is enough wealth in this country to support investigation, and this wealth will be more freely given if there are not any royalties. I think that the American Medical Association could well sponsor the setting up of a national body for the standardization of these products. The investigator would then have no reason for patenting his discoveries and the element of commercialism need then not enter into his research work. In connection with Dr. Frank's paper, I believe that the assays which he is making of the content in the blood of the anterior pituitary hormone are giving invaluable information. It is the hormone that is secreted into the blood that counts; it is not the hormone that is stored in the gland. The assay of pituitary activity by implants gives an indication of the stored hormone of that gland; it may not give any information in regard to the amount of the hormone being supplied to the animal. Implants of the thyroid, for instance, would give an entirely erroneous picture of the amount of secretion which goes into the circulation in exophthalmic goiter and in colloid goiter. It is by using the blood assay method in which Dr. Frank is pioneering that we shall get information of the greatest value.

Dr. John C. Burch, Nashville, Tenn.: One of the most interesting phases of this work is the different action of the various hormones in varying concentrations. This is well shown by Friedman's work on the rabbit. It is important to remember that the amount of hormone circulating in the blood and at the point of action is the essential thing. In regard to the apparent contradiction between the work of Dr. Hisaw and his co-workers and that of Dr. Cunningham and myself, I wish to state that our donor rats were injected with large amounts of an alcoholic extract of human placenta over a short period of time. Following this method we got an increase of the ovarian-stimulating power of the anterior hypophysis. Dr. Hisaw found that when estrin was injected over a long period of time the reverse was true and there was no stimulation. It is possible, therefore, that these two sets of experiments were different in the type of substance injected (because placental extracts may contain some factor other than estrin) as well as in the duration of the injections. Variations in either of these two factors may have been responsible for the difference in the results.

Dr. George van S. Smith, Brookline, Mass.: The term "luteinizing hormone" for the substance prepared from the urine of pregnant women may be incorrect, for, when given intravenously, it produces ovulation as well as luteinization. The recent work of Evans indicates that this hormone is active on the ovaries only if the anterior hypophysis is present. Hence the ovarian effects may be due entirely to its stimulation of the anterior hypophysis. I was glad to hear Dr. Hisaw bring up the subject of quantitative endocrine relationships; e. g., small amounts of theelin are necessary for the progestational proliferation of the endometrium caused by progestin, but large amounts inhibit the action of progestin. This situation seems to be true also in the matter of lactation. Some of the experimental discrepancies may be found due to incorrect dosage. Dr. Ernst Philipp of Berlin implanted portions of the anterior lobes of the pituitary glands of three patients who died shortly after delivery and found the ovaries of the test animals unafoutside the usual age period and the female preslipping cases showed the same relations to trauma, excess weight and duration of the preslipping stage as have been noted for boys.

PATHOLOGY

Twelve hips have been opened at operation. In the specimens examined, the bone and epiphyseal line showed no evidence of rickets, infection or osteomalacia. The capsule and periosteum about the neck were thickened, sclerosed and avascular. These changes were present in the hip operated on in the preslipping stage (fig. 1).

CLINICAL FEATURES

There are four stages of the disease—preslipping, slipping, quiescent and residual. When there are no acute signs and no spasm, the lesion is quiescent. When the lesion is quiescent and the epiphyseal line is united, it is residual.

In these cases we have found the following: In the preslipping stage limp and pain are usual; fatigue, stiffness and disability are frequent (table 1). Examination reveals limp, pain on motion, and often spasm or atrophy. All motions except extension tend to be limited, internal rotation being most commonly affected. When the hip is flexed it tends to abduct and rotate externally, allowing further flexion. After slipping has occurred, the symptoms and signs are more pronounced. Complete disability is often present but is not dependent on the amount of displacement. Shortening, tenderness and, occasionally, crepitus and swelling may appear. When the femur is rotated, the head may be palpable under the gluteal muscles—a sign almost pathognomonic of slipped epiphysis. In the quiescent stage, the signs and symptoms have subsided and may be less than in the preslipping stage; spasm has disappeared. Limp, pain, fatigue and limitation of motion often persist into the residual stage.

Table 1.—*Clinical Features*

	Before Slipping, Per Cent	After Slipping, Per Cent
Symptoms:		
Limp	93	96
Pain	100	93
Fatigue	83	78
Stiffness	90	94
Disability in athletics	67	93
Physical Signs:		
Limp	88	84
Pain on motion	71	92
Spasm	67	84
Tenderness	33	98
Shortening	17	85
Atrophy	45	71
Limitation of Motion:		
Flexion	67	84
Abduction	64	92
Adduction	44	84
Internal rotation	86	98
External rotation	77	85
All motions	..	71
Deformity:		
Flexion	0	*
External rotation	11	67
Adduction	..	27

* As the absence of flexion deformity was not apt to be recorded, its incidence is indefinite. Flexion deformity, when present, was slight.

ROENTGENOGRAPHIC OBSERVATIONS

In the preslipping stage the epiphyseal line is abnormally wide; the end of the neck may be irregular and somewhat decalcified. Thickening of the capsule may be recognizable at the margins of the joint. Most of the other epiphyseal lines in the region are somewhat closer to union than on the normal side.

In the slipping stage the same changes are present, and there is a varying degree of upward displacement, external rotation and adduction of the neck on the head. The displacement of the head uncovers the end of the neck superiorly and anteriorly. Callus may be present in the angle between the head and neck inferiorly; as it matures it may obscure the original outline of the neck and give the appearance of an epiphyseal line in a plane more vertical than usual. Examination with the femur rotated internally causes the shadows of the head and neck to superimpose, simulating reduction of displacement.

Table 2.—*Example of Index of Motion*

	Motion	Factor	Product
Flexion	145	0.4	58
Abduction	45	0.4	18
Adduction	30	0.2	6
Internal rotation	30	0.2	6
External rotation	60	0.1	6
Extension	10	0.1	1
Index of function			95

Hypermobile	over 110
Normal	90 to 110
Good	60 to 90
Fair	50 to 60
Indifferent	40 to 50
Poor	30 to 40
Bad	under 30

After quiescence, the callus is mature, there is no decalcification unless there has been confinement in plaster, the end of the neck is less irregular, and the epiphyseal line is narrow.

In the residual stage, ossification of the epiphyseal line is completed and slight calcareous deposits indicating arthritis may appear at the articular margins. Arthritic changes are more extensive and more definite several years later.

Marked lumbosacral anomalies, such as a transitional type of vertebra, were present in 43 per cent of the cases.

DIAGNOSIS

A child between 8 and 18 years of age complaining of a limp, or pain in the hip, thigh or knee may have a preslipping or slipped upper femoral epiphysis. The *hip should be carefully examined for limitation of* motion, particularly internal rotation and abduction, and for spasm at the limits of motion. The presence of these physical conditions necessitates roentgenographic examination, by which the diagnosis can almost always be established. Questionable cases should have careful observation, limitation of activities, and repeated roentgenographic examinations.

The roentgenographic and other features of this condition are so different from those of other conditions occurring in this age period, such as tuberculosis, fracture, dislocation, residuals of coxa plana, osteomyelitis and suppurative arthritis, that discussion of differential features is superfluous. The active stage of coxa plana is usually confined to children under 10 years of age. The absence of changes in the epiphyseal line distinguishes nonsuppurative arthritis.

METHODS OF EVALUATION OF RESULTS

If operative procedure does not correct displacement, the operation has failed. Since upward displacement of the neck is the most important deformity to correct, is the easiest to measure, and is usually corrected when and extension. Seven of these—five of which had attempts at closed reduction—were followed to the quiescent or residual stage. Only three showed any notable improvement anatomically; these were improved functionally but still had low indexes, 51, 47 and 33. Of the four that were not materially improved anatomically, one was functionally slightly better, one was slightly worse, and two were much worse. These results do not compare favorably with cases in which no attempt at reduction was made. Probably a bar to successful reduction in these operations was callus formation on the neck inferiorly which would catch in the margin of the head. This suggests the need of exposing this area at operation so that the callus can be removed and the head pushed up. All these open operations were in cases of long standing, with marked callus formation. It is quite possible that open operations done in fresh cases might show much better results.

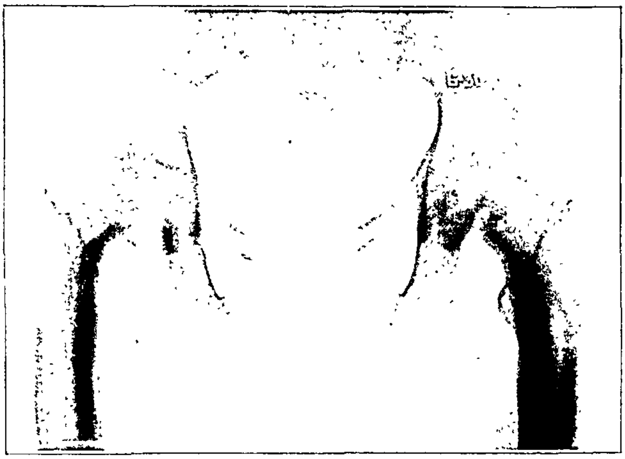

Fig. 3.—Marked bilateral displacement with good function. On the left the index of function was 73; on the right it was 83. There was no operation.

Subtrochanteric osteotomy was done in four cases with displacement from five-eighths to seven-eighths inch. One was a stiff hip in adduction deformity which was relieved. The others showed flexion or extension of the upper fragment after operation. In one case this added 2 inches (5 cm.) to the shortening. This case was not improved functionally. The remaining two cases were materially improved and attained indexes of 80 and 70.

Two patients eventually had reconstruction operations, one after four attempts at reduction, including an open operation; the other after an attempt to hold the head in place with a spike which penetrated the joint.

RELATION OF DEFORMITY AND OF REST TO FUNCTION

In the final examination in the residual cases and in the initial examination in all cases we found instances of marked deformity with good function (fig. 3) and of slight deformity with impaired function (fig. 4). There is no constant relation between deformity and function. The average function is less with greater displacement, but this is partly accounted for by greater traumatism in treating them.

Seven patients had two or more months in bed before operation. Their average functional index went up from 30 to 56 before operation and was only 60 in the residual stage. Three were worse after operation. Rest accomplished more in restoring function than did attempts to improve the deformity. One third of the cases in which two and a half or more months were spent in bed became quiescent within four months. All cases with less rest period took longer than this, averaging ten months. These improvements with rest indicate that impairment of function is due in part to inflammation. We believe that it is as important to treat this inflammation as to treat the deformity.

AN OPERATION FOR YOUNG PATIENTS

The seven cases which did not slip were followed to the quiescent or residual stage. None of the four cases relieved of weight bearing during the preslipping stage developed any displacement; of the remaining sixty-six cases, in thirty-one of which a preslipping stage was definitely recognized, only three reached the residual stage without slipping; thus the chance of slipping is great, and two or even three slippings are not infrequent. All cases in which slipping did not occur became symptomless, with normal function. In cases with displacement followed to the residual stage, the index was 46 or less in 50 per cent. To allow displacement to occur is to exchange a potentially normal hip for a 50 per cent chance of having less than 50 per cent function.

In the preslipping cases, slipping must not be allowed to occur. Displacement may be prevented by confinement to bed or possibly by a caliper brace. A brace with weight bearing is of no value in these cases. Such treatment is satisfactory if the patient is old enough to attain ossification of the epiphyseal line in a short while. When the patient is young, an operation to hasten ossification of the epiphyseal disk is better and safer than long periods of bed or brace treatment. Such an operation, used in one case,[1] is as follows: The capsule is opened through a Smith-Petersen incision, and several holes are drilled through the neck and epiphyseal line into the head. Bone slivers may be inserted in the drill holes. When the patient operated on, a girl, aged 11 years, was up after three months in bed she had an index of 79 and the head was united to the neck (figs. 5 and 6). This was a twenty-point

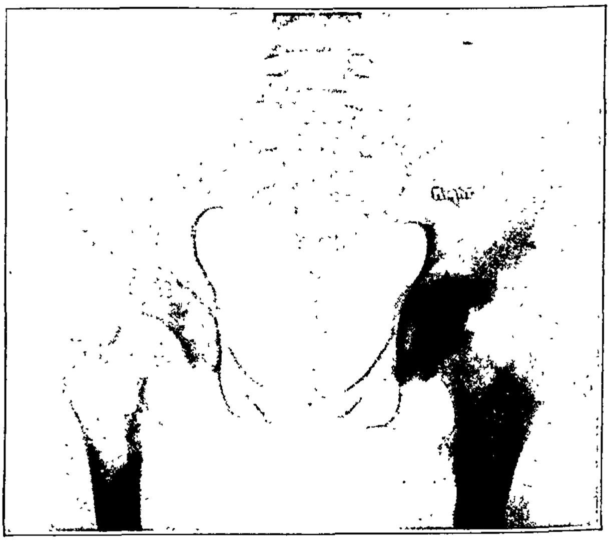

Fig. 4.—Slight displacement at the left hip with poor function. The index of function was 21.

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[1] The operation has been used in two more cases since June, 1931, with excellent results to date.

ditions such as coxa plana and osteochondritis dissecans. Transitional cases showing the relation to these other conditions have been excluded from the present report.

This disease is far more common than is generally supposed. Every adolescent child with a hip limp should be examined for it, especially if the child is overweight. If the condition is recognized in the preslipping stage it should be considered an emergency case. Displacement must be prevented. In selecting the treatment to be applied to the given case there must be careful consideration of the age of the patient, the stage of the disease, the presence of callus, and the time since the onset of symptoms and since displacement.

SUMMARY AND CONCLUSIONS

1. Seventy cases of slipping of the upper femoral epiphysis are reviewed.
2. Bilateral occurrence is not infrequent and should always be looked for.
3. *Overweight children, whether tall or fat, are* more susceptible to the condition. This appears to be due to the greater stress on the hip rather than to any physiologic factor such as endocrine imbalance.
4. Trauma appears to be of importance merely in hastening the onset of symptoms or displacement in a hip which is already diseased.
5. Seasonal variations in onset are accounted for by the seasonal activity of children.
6. The onset of symptoms and of displacement occurs usually during the rapid growth period of adolescence. Exceptions are explained by the factors of weight and trauma.
7. The pathologic features are sclerosis, thickening and avascularity of the soft tissues about the neck, with absence of any primary disease of the bone or cartilage.
8. Sclerotic changes about the neck are followed by a vascular disturbance, resulting in weakening at the epiphyseal disk, which frequently eventuates in slipping.
9. Four stages are described: preslipping, slipping, quiescent and residual.
10. Definite symptoms, physical signs and roentgenographic evidence of the disease are always present in the preslipping stage, and early diagnosis is essential for the best results.
11. After slipping there may be complete incapacitation of the hip or only slight disability, but definite evidence of the condition is always present.
12. Final function is not proportional to deformity.
13. Adequate rest for the hip is the most important factor in obtaining a good result.
14. In hips that have slipped less than three-eighths inch, and in the preslipping cases, rest alone is sufficient treatment. If the period before expected epiphyseal union is longer than six months, drilling across the epiphyseal line will hasten union.
15. (*a*) In hips that have slipped more than three-eighths inch early in the disease and recently, reduction is recommended. (*b*) In later cases with as much displacement, open reduction or subtrochanteric osteotomy after quiescence is advised.
16. In all cases, weight reduction and eradication of foci are indicated.
17. The well developed callus and early union occurring in this condition should be mentioned because of the frequently accepted view that joint fluid interferes with the healing of bone.
18. Arthritis is the usual sequel in adults.

420 East Fifty-Ninth Street.

ABSTRACT OF DISCUSSION

Dr. Irvin Balensweig, New York: I first called attention to this condition in 1926 when, in reviewing a series of cases, I also observed that the end-results were unsatisfactory in patients who were treated by the closed method of reduction. Since that time, further study has led me to believe that this condition, as one sees it in the clinics, has been present anywhere from one to two years prior to the time of observation and that the slipping of the epiphysis is therefore a gradual process except when it is caused by traumatisms, when the head may be grossly displaced. Every attempt should be made to recognize the lesion prior to the slipping; this can be done by subjecting children between the ages of 10 and 12 years to roentgen examination when they present themselves with a history of so-called growing pains in the thighs and an occasional limp. The movements of the hip will be found to be free except those of internal rotation and flexion with the limb in a neutral position; whereas flexion with the limb in external rotation is freer. This sign, to my knowledge, has never been described *before. Roentgen examination in these cases reveals a widening* of the epiphyseal line, and some fragmentation and areas of absorption in the diaphyseal region. The patients should be treated either by the conservative method of using a Thomas caliper brace or, far better, by a fusion of the epiphyseal line. I am pleased to learn that this type of operation has been carried out at the New York Orthopedic Hospital. It is also wise to roentgenograph hips before and after attempts at reduction in both internal and external rotation. It is only by such a procedure that one can determine the accuracy of the reduction. It is my conviction that when the condition is of long standing reduction cannot be accomplished by manipulative measures.

Dr. Albert B. Ferguson, New York: As to the relation to coxa plana, we have a number of cases that we might consider as transitional between coxa plana and slipping epiphysis. Some of these cases resemble, for example, the preslipping stage of slipping epiphysis, but at such an early age we are not sure whether a coxa plana or a slipping epiphysis will develop, and in some, as we followed them, coxa plana has developed, and in others slipping epiphysis has developed. In the paper we have excluded all transitional cases, both those that show a relation to coxa plana and those that show a relation to osteochondritis dissecans. The same applies to cavitation in the neck of the femur. We have a few cases in which actual cavities have been present in the neck and one case in which there was an actual abscess in the neck, which also showed a slipping epiphysis. We consider the latter as a transitional case and have not included it in the report, which is limited to typical cases of slipping epiphysis. The examination of the hip roentgenographically in internal and in external rotation needs to be emphasized, as Dr. Balensweig has brought out. In these closed reductions in which we have reported a very small percentage of success, most of the reductions have been considered good reductions when roentgenographed after the operation. They were found to be anything but good reductions by examination in positions other than the usual anteroposterior position. The patient could be turned on the face in plaster and rotated until the femur was brought into a neutral anteroposterior position or into an externally rotated position, and the displacement would then be visible just as it was before reduction, and, on the other hand, we have made such films, films in internal rotation, which would be the position after reduction. We have made such films before the operation and then had a picture which was exactly the same as the film after reduction. If one wishes to be sure as to the presence or absence of reduction, one must examine these patients very carefully and in *several positions. With regard to traction reduction,* on the operating table it is, I think, impossible to use the amount of traction which we have used in accomplishing this reduction. It has been demonstrated in these cases that traction of from 300 to 600 pounds (136 to 272 Kg.) in adduction in cases sufficiently recent will reduce the displacement. We have several cases in which the reduction was practically complete and confirmed by views in several directions. We have, however, had considerable difficulty in maintaining that reduction. At least a third and possibly half of the cases in which we have used traction have later showed some displacement, so that we are not yet ready to report on the final result, either anatomically or functionally.

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Portions of the fundus showing streaks were excised, embedded in celloidin and sectioned as nearly as possible at right angles to the streaks. Before sectioning, some of the blocks were cleared in chloroform, others in glycerin. The streaks could be seen as such while being cut and were therefore definitely identified in the stained sections. One streak was cut for a short distance in serial sections, and another was cut longitudinally for a distance of 3 mm. Microscopically the streaks appeared as well defined thickenings of the pigment epithelium (figs. 2 and 3) and measured from about 0.028 mm. to 0.04 mm. in thickness and from about 0.056 mm. to 0.18 mm. in width. At their sites, the pigment epithelium consisted of from two to five layers of cells densely packed with pigment. The pigment granules retained the spindle form of those seen in normal pigment epithelium. The retina was closely applied to the streaks. In most instances it was slightly bulged up by the streak, but in some instances only its outer layers were compressed by the streak, the inner surface of the retina maintaining its normal level. Occasionally, the surface of the choroid beneath the streak was slightly depressed. In the vicinity of some of the streaks, the pigment epithelium contained somewhat less pigment than elsewhere. In the affected region there were areas, from three to seven cells in width, in which the cells were more densely pigmented than elsewhere and in which there were from one to three pigment cells on the inner surface of the pigment layer.

Case 2.—A woman, aged 73, with general arteriosclerosis and high blood pressure (240 systolic and 100 diastolic) was first seen at the Massachusetts Eye and Ear Infirmary, Jan. 8, 1930. The vision of each eye was reduced to counting fingers at 5 feet. There were numerous scattered retinal hemorrhages in each eye. The tension of each eye was normal.

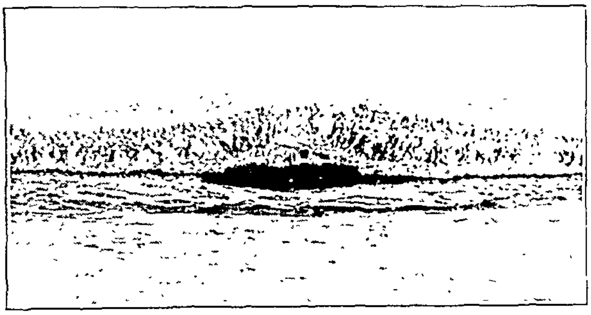

Fig. 2 (case 1).—Section stained in hematoxylin and eosin, showing a pigmented streak cut transversely. The slight depression of the surface of the choroid beneath the streak may be indicative of the preexistent crease; × 116.6.

January 27, the tension of the right eye was 75 mm., that of the left, 17 mm. (Schiötz). The vision of the right eye was reduced to perception of shadows.

January 30, a trephine operation and iridectomy were performed on the right eye, a very large trephine being used.

February 21, extensive separation of the choroid on both sides and below was noted.

November 17, the tension of the right eye was 49 mm., the fundus was not visible and the vision was nil. The right eye was enucleated.

Pathologic Examination of the Right Eye.—The eye was fixed as in the previous case. Sections showed marked sclerosis of the retinal vessels, scattered small retinal hemorrhages, glaucomatous cupping of the optic disk, and peripheral anterior synechia. The retina and choroid were everywhere in situ. There was slight if any edema of the retina. The retinal ganglion cells had entirely disappeared. The lens was not cataractous, but there was a delicate pupillary membrane over it. The trephine wound was covered over with fibrous tissue, which was bulged outward. Serial cross-sections of the central retinal vessels showed complete obstruction of the central vein due to endophlebitis.

When the eye was opened after fixation, the vitreous was found separated from the retina, and the small amount of it remaining was confined to the anterior part of the eye. The fundus showed many pigment streaks on each side, similar to those in case 1. Four of the largest were on the nasal side, each of which began about 4 mm. behind the ora serrata. One, about 10 mm. in length, had a meridional direction; one, about 11 mm. long, ran upward and outward; one, about 12 mm. long, ran downward and, about 1 mm. from its end, the other streak began and continued for about 11 mm. These streaks appeared to be made up of dots, and were about 0.25 mm. in greatest thickness. With the loupe many smaller streaks could be seen. These were irregular or curved, and some of them branched.

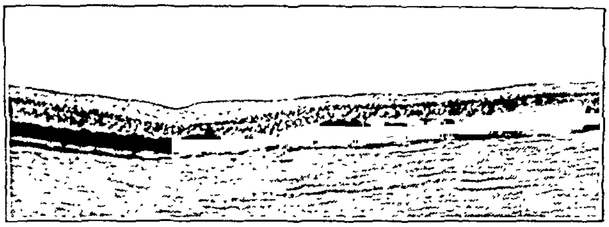

Fig. 3 (case 1).—Pigmented streak sectioned longitudinally; × 83.3.

Portions of the fundus containing streaks were excised and sectioned as in the previous case. For a short distance one of the finer streaks was successfully sectioned longitudinally. Microscopically, the streaks were essentially similar in appearance to those in case 1. In this case, however, occasionally a few of the cells in the central portion of a streak were partly or wholly free from pigment (fig. 4). In one instance a colloid excrescence was seen within a streak. This no doubt existed before the streak was formed. The retina was closely applied to the streaks as in case 1, and in all sections made of this eye the choroid was everywhere smoothly applied to the sclera and showed no indentations of the membrane of Bruch. In some areas within the regions of the streaks the pigment epithelium contained less pigment than elsewhere. Over the entire fundus the pigment epithelium showed numerous small colloid excrescences and also other changes which could not be certainly distinguished from those commonly seen in senile eyes.

COMMENT

In neither of these cases were the streaks seen ophthalmoscopically, but as seen with the naked eye and with the loupe, after the globes had been fixed in formaldehyde and opened,[6] the streaks were perfectly typical of those seen after separation of the choroid (fig. 1). The separation of the choroid had been observed ophthalmoscopically in case 2 but not in case 1. In case 1, however, two operations had been performed on the eye, the second one seven months prior to enucleation, so that there was an opportunity for the separation of the choroid to have occurred on two occa-

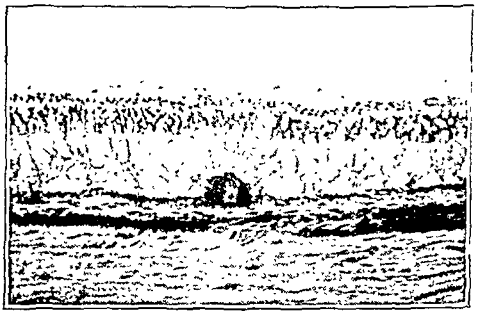

Fig. 4 (case 2).—Pigmented streak in cross-section. In its center is a large cell almost free from pigment; × 116.6.

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[6] As a fixative, solution of formaldehyde has certain disadvantages, but these cases illustrate one of its great advantages; namely, that it permits details in the fundus to be seen almost as well as they can be seen with the ophthalmoscope. After many other fixatives the streaks would have been invisible.

into rounded inward folds associated with outward creases.

From the foregoing observations the manner in which permanent pigmented streaks are formed as a result of separation of the choroid is now apparent. When the choroid is reapplied to the sclera, it is stretched to its original dimensions, so that all the folds and creases entirely disappear, leaving its surface smooth. As a result, the pigment cells that had accumulated in some of the creases are lifted up in the form of ridges on the surface of the choroid, visible with the ophthalmoscope as pigmented streaks. At the same time, the retina is smoothed out and is closely applied to the streaks.

The granular appearance of the streaks is due to the fact that the accumulations of pigment cells were not uniform throughout the creases, and the irregularities and breaks in the streaks correspond to similar defects in the preexistent creases.

The paler areas sometimes seen in the affected portion of the fundus are due to diminution in the amount of pigment in the pigment epithelium, resulting, no doubt, from the abnormal conditions of nutrition existing while the choroid was separated. The discrete pigment dots, separate from the streaks, are due to increased pigmentation and proliferation of the pigment epithelium in small areas, possibly corresponding to small pits which existed in the surface of the separated choroid.

The reason that the streaks do not occur near the optic disk is that the choroid is so firmly united with the sclera in this region that it seldom if ever becomes separated here.

As to the frequency of their occurrence, it might be supposed, judging by the scarcity of the recorded cases, that these permanent streaks are extremely unusual. But it seems to me, nevertheless, that they may be of relatively frequent occurrence and are often overlooked. I have seen them in very few cases but am sure that I have not always examined the fundus, especially its periphery, with sufficient thoroughness to detect them. It is certain, however, that they do not occur in every case in which there has been separation of the choroid. Obviously, they would not be formed in cases in which the separation was of short duration, for the observations here recorded clearly indicate that the extent and duration of the separation are determining factors in their formation.

As to the time when the pigmented streaks are formed, the cases recorded in the literature afford no exact information. Lindner observed the streaks in his second case three days after the separation had subsided. But in this case a trephine operation had been performed three months previous to the final operation, so that the streaks may have occurred then and have been overlooked. Plocher discovered streaks in his case two months after the separation was first noticed, and before it had entirely subsided. The actual observation, by means of a loupe, of pigmented streaks on the surface of the separated choroid in one of the present cases (fig. 7), as previously described, shows that streaks actually exist before the separation has subsided. These streaks, however, are much finer and more numerous than those seen in cases in which the choroid has become replaced (fig. 1), and sections made of them show that they are really fine creases (fig. 5). They are not generally recognized on ordinary ophthalmoscopic examination, but, as previously noted, in a recent case I was able to see them by transilluminating the separated choroid through the sclera. No doubt, when the separation subsides and the creases have been smoothed out, all the streaks disappear except those in which pigment cells have accumulated. The permanent streaks, actual ridges of pigment epithelium, must certainly appear soon after the choroid has been reapplied to the sclera.

In a previous communication before this section, I[7] demonstrated the nature and origin of angioid streaks, showing that the latter are corrugations of the inner surface of the choroid, including the pigment epithelium, resulting from fibrosis of the outer layers of the choroid. From the observations that I have recorded, it can now be regarded as certain that the pigmented streaks resulting from separation of the choroid are entirely different in nature and origin from angioid streaks.

CONCLUSIONS

From macroscopic and microscopic studies of two eyes showing pigmented streaks in the fundus, and of five eyes in which separation of the choroid still existed, the following conclusions are drawn:

Pigmented streaks in the fundus resulting from separation of the choroid are entirely different in nature and origin from angioid streaks.

Very fine pigmented streaks exist while the choroid is still separated. These are furrow-like creases in the surface of the choroid. They are not usually visible on ordinary ophthalmoscopic examination but they may be seen, in some cases at least, by transilluminating the separated choroid through the sclera. All these creases disappear as such when the separation subsides.

The permanent pigmented streaks, seen after the separation has subsided, are ridgelike thickenings of the pigment epithelium.

The pigment cells composing the permanent streaks originally accumulate within some of the furrow-like creases that exist while the choroid is separated. When the choroid becomes reapplied to the sclera and these creases are smoothed out, the accumulations of pigment cells are elevated, thus giving the appearance of streaks.

82 Commonwealth Avenue.

ABSTRACT OF DISCUSSION

Dr. T. B. Holloway, Philadelphia: As Dr. Verhoeff has stated, the recorded case histories of pigmentation after detachment of the choroid are rare, and it is gratifying that these cases should have come under his observation and that his observations are available for this section. The only probable case of this character that I have seen was in an eye observed at the former Polyclinic Hospital, fourteen or fifteen years ago, and at the time the significance of the pigmentation was not understood. In character it corresponded to the type under discussion. It was not until I had occasion to review the literature concerning angioid streaks and saw references to this type of pigmentation developing after choroidal detachment that the case mentioned was recalled. Naturally, those who have described these cases have pointed out those characteristics that differentiate them from angioid streaks, or, as Verhoeff has suggested, fibrosis choriodeae corrugans. Nevertheless, it is interesting to note that each of these types of linear pigmentation has to do with the pigment epithelium, the one doubtless of vascular origin, with fibrosis, as the author has shown, as the contributing factor, while in the other case it is brought about as the result of what might be regarded as a mechanical sequence of a detached choroid. While it has been shown that these streaks may be visible with the ophthalmoscope within a few days after the choroid has become detached, Dr. Verhoeff

a careful reexamination would be made at least every other year to determine the results.

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[7] Verhoeff, F. H.: The Nature and Pathogenesis of Angioid Streaks in the Ocular Fundus, Tr. Sect. Ophth. A. M. A., 1928, p. 243.

In the spring of 1926, active opposition to the prophylactic measures began. An article by Hartsock[1] emphasized the great dangers of hyperthyroidism from the use of iodized salt. The state department of health almost immediately withdrew from its active campaign and only a partial resurvey was made in 1926. No further study was made by the state department of health.

In Cleveland the director of health service in the public schools has not had a concrete plan for the prevention of goiter; hence no unity of opinion on this point could prevail among the school physicians and nurses. Neither has there been a unanimity of opinion among the members of the medical profession of Cleveland. Some of the leading goiter surgeons have persistently and continuously opposed the use of iodized salt on the ground that it might cause hyperthyroidism. This theoretical possibility was stressed with such an effect that in this community it has been *generally accepted that the continued use of iodized salt* is actually dangerous. In my survey through the schools last year I found that most of the principals, teachers, nurses and school physicians were working under the impression that iodized salt was not a safe method of prophylaxis. This contrast in attitudes toward the general use of iodized salt for the prevention of goiter in Detroit and in Cleveland has created an ideal basis for this comparative study.

As previously stated, a survey was made in the Detroit schools early in 1924. This included both boys and girls from the first grade through high school. It was found that 36 per cent had a definite thyroid enlargement. No attempt was made to differentiate accurately the congenital adenomas from the active hyperplastic type, but I felt sure at the time that the incidence of congenital adenomas in this survey was approximately the same as in other sections of Michigan, where from 10 to 12 per cent was found. In the Cleveland schools no extensive goiter study was ever made.

In the fall of 1924, a goiter survey was made through several of the parochial schools. I myself made this survey for the city health department in order to start prophylaxis through these schools. All the children in one primary, one intermediate and one high school, approximately 1,200 children, were examined, a total incidence of goiter of 34 per cent being found.

TABLE 1.—*Comparison of Incidence of Goiter in School-children of Detroit and of Cleveland*

	Total Incidence of Goiter in Regular Schools, 1924	Total Incidence of Goiter in Special Schools, 1930-1931	Hyperplastic or Iodine Deficiency Goiter in Special Schools, 1930-1931	Number of Examinations
Detroit...............	36%	12%	0.3%	5,075
Cleveland...........	34%	30%	18.0%	3,175

During the school year 1930 and 1931 the Detroit school physicians examined more than 100,000 children from the first grade through high school. They reported that only 2.1 per cent showed an enlargement
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genital goiter. That is what Dr. Marinus and I found in the examination of 5,075 children in the special schools of Detroit during the last two years. The total incidence of goiter was 12 per cent, but 97 per cent of these were only discrete adenomas or a persistent thyroglossal stalk (congenital goiter), with the remainder of the gland normal. We studied them for the presence of hyperplasia or a uniform colloid enlargement, which condition, we feel, means an iodine deficiency. Of this type (iodine deficiency goiter) we found only fifteen cases, or 0.3 per cent. We kept this differentiation constantly in mind: (*a*) congenital goiter with normal function and chemistry; (*b*) hyperplastic or iodine deficiency goiter. There was no thought of creating a new classification. These descriptive terms were used only to express our feeling as to the iodine deficiency, either at the time of the examination (hyperplasia) or a recent condition (colloid).

TABLE 2.—*Yearly Report of Incidence of Goiter in Detroit* *

	1924	1926	1927	1928	1929	1930	1931
Incidence of goiter........	36%	9.7%	7.7%	7.2%	5.2%	3.1%	2.1%
Number of examinations.	3,000†	69,805	78,085	115,535	107,853	141,366	114,969

* From Detroit City Health: School Health Service, Annual Reports, vol. 13-14.

† Approximately.

During this school year, a glandular survey has been made through the special schools of Cleveland. It is comparable in every way with that made in Detroit during the past three years, since the study in each city was directly under my supervision and every thyroid examination was made by me. The same classification of congenital goiter and iodine deficiency goiter has been maintained throughout, and because of this unity the comparison shown in table 1 seems significant.

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1. Hartsock, C. L.: Iodized Salt in the Preventi
Safe Measure for General Use? J. A. M. A. 86: 1

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The gradual decrease in the incidence of goiter in the Detroit schools is shown by the reports of the school physicians. The first examination, 1923 and 1924, showed an incidence of 36 per cent. The survey in the spring of 1926 after two years of prophylaxis showed only 9.7 per cent. The decrease was so striking that I was asked to recheck this survey. It was found, however, that this incidence (9.7) was as accurate as could be obtained. This yearly report from Detroit is shown in table 2.

I have no comparable reports by the Cleveland school physicians. This year a partial survey was made: 1,600 girls, aged 13 and 14, were examined, and 33 per cent had definite thyroid enlargement. An examination of 500 girls, aged 17 and 18, showed 34 per cent with goiter.

In an effort to learn to what extent iodized salt is being used in Cleveland, the assistance of six schools in different sections of the city was enlisted. In 5,438 homes reporting, 1,587 stated that they used iodized salt, either continuously or at times, and 3,860 stated that they had never used iodized salt. From this study it was found that only 31 per cent of the homes in Cleveland have used iodized salt.

As a further check on this prophylactic measure, the department of chemistry of the Cleveland Health Department analyzed for iodine content all the leading brands of iodized salt being sold there. This study was carried out during March, April and May of this year. Of eight different brands of iodized salt, three did not contain any iodine. These were leading brands in this city, and it is plainly seen that approximately 50 per cent of the iodized salt being sold in Cleveland satisfied with these observations, I gave the formula to other surgeons and asked for unbiased reports. The reports were all enthusiastically commendatory, and it is after a test period of over eight years that the formula and technic are now to be published.

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[1] Hartsock, C. L.: Iodized Salt in the Prevention of Goiter: Is It a Safe Measure for General Use? J. A. M. A. **86**: 1334 (May 1) 1926.

The technic of application here described is the means of securing the maximum result by the use of the formula.

The formula, which has been called oxyquinoline sulphate scarlet R ointment, is as follows:

		Gm. or Cc.	
℞	Oxyquinoline sulphate..............	|6	gr. x
	Chlorbutanol (choretone)......... ..	2|4	gr. xl
	Liquid petrolatum....................	4|0	℥ i
	Scarlet R ointment, 5 per cent.....	120|	℥ iv

When 10 per cent scarlet R ointment is used, take *2* ounces and petrolatum, *2* ounces.

The oxyquinoline sulphate and the chlorbutanol are ground separately into fine powders and then mixed separately with portions of the liquid petrolatum. All the ingredients are then made into a red ointment. The finished ointment is heated until fluid, and rolled gauze bandages, 32 by 44 mesh, or coarser, are immersed in the hot ointment until the entire bandage is thoroughly impregnated, until all bubbling has ceased. When cool, it is ready for use. The finished product has been called oxyquinoline sulphate scarlet R gauze.

The formula herewith presented will impregnate completely three 10-yard gauze bandages, 2 inches wide, or six, 1 inch wide, provided it is heated in a small vessel; for example, an aluminum measuring cup such as is ordinarily used in the kitchen.

When a bandage has been immersed in the ointment as described, the mesh of the outer layer or two is covered completely and these layers are discarded. The warp and woof of the rolled gauze are completely impregnated with the red ointment, but the interstices are open. A bandage so prepared will keep indefinitely if contamination is avoided.

The rationale of the ingredients is easily given.

Oxyquinoline sulphate is a definite chemical compound. It is a yellow crystalline powder, a powerful antiseptic, nontoxic, and it does not destroy growing cells. It does not coagulate albumin or injure mucous membranes. In this ointment its strength is as 1 to 200.

For over twenty years I have applied oxyquinoline sulphate powder to wounds by means of cotton tipped applicators wet with alcohol and have found it a most valuable application for preventing and overcoming early or potential infections.

Chlorbutanol, trichlortertiarybutyl alcohol, is a definite chemical compound having marked local anesthetic properties and is mildly antiseptic.

Scarlet R ointment containing 5 per cent Scarlet R Medicinal Biebrich is definitely stimulating to the epithelium and promotes its growth. This dye is a definite chemical substance, aminoazotolueneazobetanaphthol. This preparation has enjoyed wide use for many years, but its value is greatly increased by the formula here presented.

Dimazon, diacetylaminoazotoluene, has been used in place of the scarlet R, but the results seemed more satisfactory with the red ointment.

The application of oxyquinoline scarlet R gauze to the wound is very simple. Excess secretions are removed by gently but firmly pressing with dry gauze. When cotton is used on wounds, small bits adhere. Short pieces of oxyquinoline scarlet R gauze are cut and laid directly on the wound, completely covering the entire surface with but a single layer. Overlapping is reduced to a minimum. Dry gauze is then applied in sufficient thickness to carry away the secretions and to protect the wound. A bandage keeps the red gauze in close contact with every part of the wound surface.

The dressings are changed every second to fifth day, care being taken that the new epithelium is not disturbed. The dressings usually come away readily. When they do not, which is rare, they are left until the next dressing and are never pulled off. Frequently the red gauze is left in place until complete epithelization has occurred.

Infection slows up the normal rate of wound healing, and when infection is eliminated healing goes on with surprising rapidity. By the use of this method the healing time is greatly shortened, resulting in soft scars with less tendency to bind and, therefore, a minimum of deformity. Healing is rapid and the wound is clean throughout.

When ointment is applied to gauze as one spreads butter on bread, the mesh is closed in the center by a thick layer and the edges are devoid of ointment. The application of such a dressing holds the secretions in at the center and allows the dry gauze at the periphery to stick to the wound. When secretions are held in contact with a wound, the tissues beneath are broken down. When secretions are carried away, this breaking down does not occur.

Lest it be misunderstood, let it be distinctly stated that the formula and method here described are not a primary treatment for burns. The best results as first treatment of burns are obtained by using tannic acid and forced fluids. The treatment here described is for the healing of the resulting ulcerated surfaces.

An important use of this dressing is in preparing wound surfaces for skin grafting. The application of oxyquinoline scarlet R gauze will rapidly clean up infected granulations and make them ready for Thiersch or other skin grafts. The application of this gauze for three or four days is often sufficient. Following Thiersch or Reverdin grafting, the gauze is applied over the grafts, and the dressing is not changed for four or five days or longer. Rapid healing minimizes the formation of scar tissue between grafts. Chronic ulcers of the leg, x-ray and radium burns, and other sluggish processes respond readily.

When oxyquinoline scarlet R gauze is used, skin grafts will take very frequently where otherwise they would not. It is during the waiting period while the denuded area is being made ready for skin grafting *that scar tissue with its resulting contractions is increasing*. By the use of this method, skin grafting can be done early and disfiguring contractions and webbings prevented.

Dressings are changed less frequently when oxyquinoline scarlet R gauze is used. Every fourth, fifth or sixth day the entire dressing is removed, while every second to fourth day the outer dressings may be changed. By replacing the outer dressings as necessary, the mesh in the oxyquinoline scarlet R gauze is kept open, and the new dressings carry away the drainage.

The application of a very thin layer of the ointment is made occasionally directly to healing incisions and is an aid to the production of invisible scars.

A boy, aged 9 years, received an extensive burn extending from the umbilicus to the left ankle. The entire skin surface sloughed, leaving an ugly, weeping wound. The immediate treatment with tannic acid and to gums has already been discussed by me[1] in an article, "Injuries Resulting from Irradiation in Beauty Shops."

The conditions for which x-rays were given are listed in table 4.

Table 4.—*Conditions for Which Treatment Was Given*

Condition Requiring Treatment	Number of Cases
Acne	16
Superfluous hair	14
Psoriasis	4
Pruritus ani	4
Dermatophytosis	9
Tinea tonsurans	7
Tinea cruris	3
Warts	8
Dermatitis venenata	4
Lichen planus	1
Cancer	4
Keloid	5
Nevi	3
Lupus vulgaris	3
Tuberculous glands	4
Thyroid hypersecretion	5
Superficial nodules	2
Sarcoma	2
Excessive menstruation	2

Table 5 shows the location of the third degree burns, and the condition for which treatment was given.

Table 5.—*Third Degree Burns*

Condition Requiring Treatment	Number of Cases
Lupus vulgaris of face	2
Pruritus ani	2
Dermatophytosis of foot	2
Wart on hand	1
Cancer of ear	1 (radium)
Sarcoma of jaw	1
Sarcoma of axilla	1
Excessive menstruation	2

The location and primary conditions of the cases which resulted in serious keratoses are listed in table 6.

Table 6.—*Cases Resulting in Serious Keratoses*

Primary Condition	Number of Cases
Superfluous hair of face	1
Superfluous hair of legs	1
Psoriasis of feet	1
Psoriasis of legs	1
Dermatophytosis of foot	1
Wart on hand	1
Linear nevus of hand	1
Lupus vulgaris of face	1
Dermatitis of face	1
Industrial exposure in roentgenologists	5

It is to be noted that many patients suffering from comparatively benign conditions were among those who were most seriously damaged.

The patients mentioned in the foregoing lists met with the fates shown in table 7.

Of the 111 patients, 37 had been treated with rays filtered through 1 to 3 mm. of aluminum, and the remainder with unfiltered rays. These figures are of little value, as they fail to show the total number of patients treated with either filtered or unfiltered rays in whom no permanent injury developed. The attempt was made to learn whether various voltages had the slightest effect. So far as could be deduced in this series of cases, there was no difference in results of patients treated with a peak voltage of 80 or of 130 kilovolts.

It has also been stated that the face, neck, flexor surface of the arms, and the skin covering the joints are unusually susceptible. In seven patients the same dosage was given to the skin of the face, and either to the shoulders, arms or legs; the resultant injuries are practically the same in all places, which would tend to show that there is comparatively little difference in susceptibility of the skin in various areas. However, it should be noted that telangiectases did not develop on the back of the hands unless the total amount of rays received was in excess of 6 units, so it is evident that this portion of the body is unusually resistant.

In twelve persons, telangiectases developed without any preexistent erythema. But a few years ago the teaching was that such an event could never take place without an erythema following treatment. However, if one will recall that many roentgenologists have had telangiectases which developed from the cumulative effect of many tiny doses, the falsity of this teaching should be apparent. All twelve of these patients had been under close observation by competent men, and an erythema could scarcely have escaped attention. Two of the patients had received a total dosage of only 3 units; two had received a dosage of 4 units; four a dosage of 5 units, and the remainder a dosage between 5 and 6 units. It is worthy of comment that the patients in whom dilated vessels developed after a total dosage of but 3 units were both women with excessively dry skin.

Table 7.—*End-Results of Roentgenography and Roentgenotherapy in Some Cases*

Result	Number of Cases
Death from cancer of face	1
Amputation of arm	1
Amputation of leg	1
Amputation of fingers	3
Extensive skin graft to hand	1
Extensive skin graft to feet	2
Extensive skin graft to body	2

While this series of cases is comparatively small, it would seem obvious that a total dosage of 2½ units is all that can be safely administered to a patient with a very dry skin, and a maximum of 4 units to a patient with a normal skin. This is an important observation, as it tends to establish the total dosage that can be administered to any one patient over a period of years.

As patients can stand only a definite total amount of irradiation, it is absolutely incumbent on the radiologist to learn just what dosage has previously been received. Likewise, in estimating the total dosage which has been applied to the face, the number of dental roentgenograms should also be taken into consideration. When a patient has had from fifteen to twenty roentgenograms of the teeth taken, the total amount of x-rays received is not small.

Excluding the patients who were damaged in beauty shops, it was found that twenty-eight patients received their injuries from one heavy dose of from 1 to 3 units; sequelae developed in fifty-one after repeated heavy doses of from one-half unit up, and eighteen showed radiodermatitis after fractional treatments in which no dose was over one-fourth unit.

Another important point is that only seven patients showed sequelae when the diameter of the area treated was less than 1 inch (2.5 cm.). It is a well known fact that an area not more than one-fourth inch (0.6 cm.) in diameter will stand a total amount of treatment that matter. The difference in the effect on an area 1 inch square as compared with an area 4 inches square is approximately 25 per cent. This is due to scattering of the rays by the tissues and also to secondary rays. I gather that Dr. Hazen does not believe that variation in individual and in topographic toleration is important. It may not be a major cause, but I believe that it is important. I shall call attention simply to the fact that an epilating dose applied to the scalp will evoke defluvium but not erythema; the same dose applied to the face will often effect erythema without causing alopecia. I do not agree that it is unsafe to give more than a total of 2½ units to dry skin, but I do believe that dry skin is at times less tolerant than is oily skin. The same is true of an inflamed or a florid skin. I desire to emphasize the importance of making the technic as accurate as possible. The dermatologist must not rely solely on the advice of the manufacturer or even on that of the physicist. He should obtain the help of the physicist by all means, become proficient in the use of instruments of precision, such as the voltmeter, the milliamperemeter, the spark-gap, the selenium cell intensimeter, the dosimeters based on ionization, and so on, obtain instruction and advice from reliable practical sources, study reliable textbooks and, finally, depend on skin effects. The modern ionization dosimeter is an excellent instrument. It is less reliable for unfiltered than for filtered radiation. At present I am unwilling to place sole reliance on these instruments. I use such instruments daily, but I depend largely on carefully interpreted skin effects.

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[1] Hazen, H. H.: Am. J. Roentgenol. **23:** 409 (April) 1930.

Dr. William H. Guy, Pittsburgh: This paper is one in which the potentialities are more serious perhaps than is realized, because the lay public, particularly the legal end, is watching professional views on radiodermatitis, and the number of suits each year becomes greater. Further, it is difficult to obtain insurance covering x-ray burns. Those individuals who are operating are subjected to the closest scrutiny before insurance companies will take the risk. One point I think should be emphasized in regard to dosage, size of application and so on, which is of the utmost importance in estimating the proper dosage in a given case, and that is the varying susceptibility of individuals. This is a moot point, but I am convinced that such a susceptibility does exist among patients, irrespective of dry blond skins or oily skins, and that it is a fact that patients often react to a dose that is well under an erythema dose. I have compared a few such patients with a normal individual of known susceptibility. I accomplish this by taking the arm of a known type and laying it beside that of the unknown type, applying the same dose of rays and noting the reaction that occurs. I found in a small series of patients that a certain proportion do have a definite susceptibility to roentgen rays. An objection may be made to this, that the manner of living, the amount of cosmetics and soap patients use, and the varying conditions in daily life may well determine differences in reactive phenomena; but these differences apply in all therapeutics and certainly do not argue against the essential fact that patients vary in the degree of reaction to the application of radiant energy.

Dr. C. Guy Lane, Boston: During the past twelve years I have had an opportunity to see most of the dermatologic cases in which the patients have been referred for therapy in the x-ray room at the Massachusetts General Hospital. In this department the interns change every three or four months. They are trained in roentgen therapy but have not had previous superficial therapy. Occasionally an assistant roentgenologist has been there for a period of time and has become competent to go ahead with the dermatologic therapy. It may be interesting to outline the method of educating these men. Emphasis is placed on the choice of diseases to be treated and the stage; the type of patient who should be treated, in respect to age, coloration, and the like; the necessity for definite standardization of apparatus, particularly the amount of previous treatment, both roentgen therapy and other recent therapy; the question of size of the area that is to be treated; the effect of the summation of doses, in that any previous roentgen therapy should be considered in estimating the doses to be given, and the necessity of examining areas that are not then under treatment. In addition, on the record there is a special column devoted to the total amount of treatment in skin units, and that is added to, so that the physician always has before him the total amount of treatment the patient has received at the institution and that is combined, so far as ascertainable, with the amount the patient has received elsewhere. By continually stressing these facts, we have attempted to improve results and to impress on these men the need for the utmost care in the therapy of dermatologic conditions.

Dr. George M. MacKee, New York: Dr. Hazen mentioned the delayed appearance of telangiectasia. I do see remarkably delayed cases. I think that the vast majority appear within two years, but I had one patient in whom a mild telangiectasia developed fifteen years after a single mild erythema dose. Apparently, the condition may appear any time from six months to twelve or fifteen years. The later it appears, the less severe it is likely to be. Also, in many instances, telangiectasia tends to become less marked with the passage of time. This is especially true of the very severe cases. Dr. Hazen mentioned filtration as a safety factor. I agree that there is a little more safety with filtered radiation than with unfiltered radiation, but on the other hand the deep effects of filtered radiation may, at times, be injurious. I am still in doubt whether a thin filter (0.5 mm. of albuminum) should be used as a routine or whether to adhere to unfiltered radiation. Possibly, in the future it will be necessary to use filtration because of greater accuracy when dosage is estimated with instruments such as modern practical ionization dosimeters calibrated in the international x-ray unit known as the roentgen. I agree that the best treatment for a third degree ulcer is excision or plastic surgery. Treatment of sequelae must be selected for the individual case. So-called x-ray skin that frequently ulcerates or in which keratoses are constantly developing should be removed by plastic surgery. In the literature, stress is placed on the total dosage. One wants to know that, of course, but more information is required. One wants to know not only the amount but how it was given: the intervals between treatments—one-fourth unit, for instance, given once a week or one unit given every three or four weeks. Dr. Hazen mentioned the combined effect of irradiation and various topical applications. I agree that ointments containing fairly large amounts of irritating chemicals lessen the toleration of the skin for x-rays or radium, and I believe that such applications should be avoided when radium or x-rays are being used. Erythema or exfoliation evoked by topical applications may hide x-ray erythema, and this may be one reason why telangiectasia is thought by many to occur in the absence of antecedent x-ray or radium erythema.

Dr. Howard J. Parkhurst, Toledo, Ohio: The undesirable sequelae are most likely to ensue in conditions which tend to recur or persist, such as sycosis vulgaris, recurrent dermatophytosis, recurrent or generalized neurodermatitis, and especially the generalized type of psoriasis. In many instances it frequently becomes necessary to substitute other forms of treatment. One great danger of undesirable sequelae occurs in irradiation of acne by overlapping on the anterior portion of the neck, as one cheek is treated and then the other. Another condition in which danger lies is the stubborn nail disease, particularly psoriasis of the nails, which may be irradiated for some time without appreciable benefit.

Dr. Thomas W. Murrell, Richmond, Va.: I believe that many men think they are covered by insurance when they are not. I called up my insurance agent and asked, "Am I covered for radium and x-ray dermatitis in my group insurance," and he told me that I was. I asked him to look it up that I might be sure. He called back and said that he thought I was, so I asked him to write the main office of the company and find out definitely. He told me later that the company said I was not covered, but that I could be if I paid an additional fee. I paid that promptly. This is just an example of an insurance company that has been in business in Richmond for fifty years thinking I was covered by my group policy, when I was not. I think it is advisable in all instances to find out from one's company directly whether one is covered or not before a suit comes up.

Dr. Samuel Ayres, Jr., Los Angeles: Another point that might be mentioned is the occurrence of roentgen sequelae following the use of carbon dioxide snow on areas that have been previously irradiated. I am not sure that we dermatologists

Council on Pharmacy and Chemistry

INTRAVENOUS USE OF BARBITAL COMPOUNDS

The Council has authorized publication of this report on the intravenous administration of barbital compounds.

W. A. Puckner, Secretary.

More than seven years has elapsed since the introduction of the intravenous use of barbitals, sufficient time to justify an assay of the possible value of the method. The chief object of intravenous use has seemed to be the possible employment of barbitals used in this way to produce anesthesia. All the possible changes following intravenous injection, a comparison of the experimental and clinical results, and a determination as to whether the intravenous use has peculiar advantages over other methods of administration, with equal safety, are here considered. There is no doubt that the characteristic hypnotic action of the barbitals can be obtained by oral administration. Since the barbitals act essentially as hypnotics, and not as anesthetics, it is reasonable to entertain doubts about radical departures from the orthodox usage of these drugs. Nevertheless, new methods of using and new uses for well known drugs merit attention. Moreover, the intravenous use of barbitals has been widely exploited by some manufacturers and serious attention has been given to the subject experimentally and clinically. The following considerations are based on an examination of the literature on intravenous medication as it concerns the barbitals.

HISTORY

The clinical use of barbitals intravenously dates from Fredet and Perlis[1] in France, who tried diethylallyl barbituric acid (somnifene) in 1924. Three years later, in 1927, secondary butylbromopropenyl barbituric acid (pernocton) was used in a similar way by Bumm[2] in Germany. Following the experimental trial of sodium isoamylethyl barbiturate by Page and Coryllos[3] in 1926, in this country, there came a period of intensive exploitation of this barbital derivative intravenously beginning with a preliminary report by Zerfas, McCallum, Shonle, Swanson, Scott and Clowes[4] and a clinical report by Zerfas and McCallum,[5] both in 1929. During the next two years several reports on experimental studies in animals appeared. However, by the year 1931 the reports on amytal and other barbitals intravenously decreased appreciably in number. There was likewise a decline in enthusiasm over the method. In fact, by 1931 most clinical reports that showed evidences of effort to determine the value of these drugs for intravenous anesthesia concluded that all the actions and benefits from the barbitals were obtainable from oral administration, as well as, if not better than, from intravenous administration. This moderation in claims for intravenous use by physicians coincided with a cessation of intensive exploitation by manufacturers.

The barbitals will not be considered individually in this report; a collective summary will suffice. Probably the most extensive, and likewise most reliable, studies have been made with amytal. Incidentally, it may be questioned whether wholesale clinical experimentation with a drug whose actions could have been predicted from results on animals was necessary or desirable. It is now generally conceded that all the barbitals act alike qualitatively, differing only quantitatively, so that nothing is to be hoped for in the way of better and safer therapeutics from a barbital alleged to be effective in small dosage. The old law of pharmacology which teaches that efficiency varies directly with toxicity has not been invalidated among the various barbitals placed before the medical profession. Nor are the chemical and physical properties of the barbitals sufficiently different in material ways to influence the present consideration.

EFFECTS ON THE BLOOD

In considering the effects of intravenous use of barbitals, both the direct effects on the blood of the injected barbitals, and reflex or remote effects caused within the circulatory system—secondary effects not aimed at or necessarily desired in their use as hypnotics and anesthetics—must be kept in mind. The barbitals are insoluble organic acids which require large amounts of alkali for solution. Amytal, for instance, requires a degree of alkalinity the equivalent of a buffer solution with p_H 9.5 or 9.8, or the reaction of nearly a ten thousandth normal solution of sodium hydroxide, which is approximately 900 times as alkaline as the blood (p_H 7.2 to 7.4). Solutions of sodium amytal with p_H 9.2 to 9.3 give incomplete and imperfect anesthesia with disturbing effects. Amytal, and for that matter any other barbital, will not remain in solution with the chemical reaction of blood, but is precipitated. Therefore, after intravenous injection, the barbitals must be precipitated in the blood stream or exist in a finely divided physical state, possibly adherent to the formed elements and the proteins of the blood. The situation then is the presence of a foreign body in the colloidal state within a sensitive colloidal system, namely, the blood, whose physical-chemical properties and physiologic function are unintentionally and undesirably affected. There is certainly no evidence in favor of a beneficial action on the respiratory function of the blood under these conditions and no reason for believing that such an action occurs. On the contrary, the changes produced by such foreign bodies, with extensive surfaces, are generally undesirable and harmful. The actions just mentioned have been adequately demonstrated for a large variety of agents by many authorities.[6]

The changes resulting from the disturbed colloidal state of the blood are quite independent of the intrinsic pharmacologic actions of the barbitals. These changes occur with all barbitals, but the weaker the barbital happens to be, pharmacologically and toxicologically, the greater will be the mass of the precipitate in the blood. Since the extent of tissues and blood surfaces involved is probably proportional to the mass of precipitate, and the immediate or colloidal disturbances depend on some surface action mediated by the flocculated material, the physiologic changes, including reflex reactions, may be out of proportion to the intrinsic toxicity. An exact correlation of the physical changes and the functional reactions is not possible, reported. Excretion of barbitals is comparatively slow, lasting about a week, the drugs tending to accumulate without complete destruction, except possibly amytal. Coma is lasting but may be accompanied by restlessness and tremors until death. Recovery from anesthetic doses is variable but may require up to thirty-six hours.

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[1] Fredet, P., and Perlis, Régine: Bull. et mém. Soc. nat. de chir. **50**: 789, 1924. Perlis, Régine: Presse méd. **32**: 675 (Aug. 13) 1924. Cleiz and Perlis: Ibid. **32**: 18, 1924. Fredet, M.: Ibid. **33**: 288, 1925.

[2] Bumm, R.: Klin. Wchnschr. **6**: 725 (April 16) 1927.

[3] Page, I. H., and Coryllos, Pol: J. Pharmacol. & Exper. Therap. **27**: 189 (April) 1926.

[4] Zerfas, L. G.; McCallum, J. T. C.; Shonle, H. A.; Swanson, E. E.: Scott, J. P., and Clowes, G. H. A.: Proc. Soc. Exper. Biol. & Med. **26**: 399 (Feb.) 1929.

[5] Zerfas, L. G., and McCallum, J. T. C.: J. Indiana M. A. **22**: 47 (Feb.) 1929; Anesth. & Analg. **8**: 349 (Nov.-Dec.) 1929.

[6] Hanzlik, P. J.: The Basis of Allergic Phenomena, J. A. M. A. **82**: 2001 (June 21) 1924.

Most of these actions have also been demonstrated after gastric and hypodermic administrations, except that the actions are slower and the initial fall of blood pressure does not occur and the later fall is not precipitous. This means that the gastro-intestinal and tissue absorption of the barbitals is definite and reliable, from which it follows that all the desired actions can be obtained by giving these drugs by mouth, and that the sudden undesirable actions on the blood and the collapse can be avoided, and, in fact, the sedative and hypnotic actions more satisfactorily controlled.

The toxic and fatal doses of the different barbitals have been found to vary considerably with the chemical grouping in the barbituric molecule, but the activity has varied in the same direction. In no case has the margin of safety been increased by increasing the general activity. Moreover, and this is important in the use of barbitals intravenously for a high degree of depression or for anesthesia, most investigators agree that the margin between doses giving such severe actions and the fatal dosage is too narrow for safety. In dogs, the average oral, rectal and intravenous anesthetic doses of amytal are reported to be about 55 per cent of the minimum fatal dose, but considerable variability exists. Anesthesia may not occur with doses becoming fatal.

In the treatment of the toxic and collapse actions, caffeine, epinephrine and ephedrine, used individually or combined, intravenous dextrose solution, and picrotoxin have been tried with variable success, generally with temporary benefit in frank collapse and with better results during impending, suspected or partial collapse, or if used as prophylactics; but the treated animals under these conditions might have recovered without the use of these antidotes.

CLINICAL STUDIES OF BARBITALS GIVEN INTRAVENOUSLY

Clinically,[9] the following actions after intravenous injection of barbitals, chiefly sodium amytal, have been reported:

1. Full effectiveness of from 12 to 25 mg. per kilogram in from three to five minutes.
2. Difficulty in determining exact and desired dosage.
3. Immediate and sometimes precipitous fall of blood pressure, from about 15 to 30 mm. and up to from 40 to 60 mm. of mercury, according to the dose, rate of injection, physical character of the solution and original level of blood pressure.
4. Slowed, shallow and irregular respiration.
5. Increased pulse rate.
6. Unconsciousness.
7. Deep sleep.
8. Cyanosis.
9. Preservation of reflex activity.
10. Laryngospasm.
11. Severe coughing.
12. Muscular rigidity.
13. Incomplete and imperfect analgesia.
14. Depression out of proportion to toxicity.
15. Retention of mucus in respiratory passages.
16. Decreased urinary elimination, urine containing trace of acetone.
17. Increase in phenolsulphonphthalein excretion at first, decrease later.
18. Transient renal irritation.
19. Decrease in oxygen consumption and tactile discrimination.
20. Allergic reactions with amytal and phanodorn.

Man is more sensitive than are animals. Mild euphoria without sleep and narcosis occurs after 60 mg. of sodium amytal.

In obstetrics, the second stage of labor and uterine contractions are not usually changed, but the infants are frequently apneic and require respiratory stimulation. Excretion of phenobarbital in milk is reported.

Postoperative actions have been reported as follows:

1. Prolonged depression lasting from twelve to eighteen and up to thirty-six hours, according to the dose and the individual.
2. Lack of patient's cooperation and orientation, and considerable confusion.
3. Restlessness and delirium, swallowing of tongue and cyanosis.
4. Decrease in intake of fluid and voiding.
5. Pulmonary congestion and edema due to shallow respiration.
6. All actions profound in the aged and debilitated.
7. Sudden awakening during operation under local anesthesia.

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intravenous route would be an occasional rapid action in an emergency, as in the control of convulsions of toxic or disease origin, or in occasional operations. Hence their intravenous use should be limited for the present to conditions in which oral administration is not feasible either because the patient is unconscious, as in cerebral hemorrhage, eclampsia, or status epilepticus, or because he resists, as in delirium, or because a very prompt action is imperative, as in convulsion from local anesthetics.

Committee on Foods

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RAYMOND HERTWIG, Secretary.

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Milk-Made Candies
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Statistical Data
Safety and Simplicity in Infant Feeding
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4. The fat of evaporated milk because of the homogenization processing is more finely dispersed than the fat of ordinary milk and therefore it is more readily acted on by digestive enzymes.
5. Evaporated milk is more speedily digested than raw or pasteurized milk or milk boiled only a very short time.
6. Evaporated milk is considered by many pediatricians to be the best form of cow's milk for preparing the baby's formula.
7. Evaporated milk is sterile and therefore is the safest milk obtainable; it cannot introduce pathogenic micro-organisms to induce diarrhea in infants.
8. Evaporated milk is usually less allergic than raw or pasteurized milk.
9. Evaporated milk is one of the most convenient and economical forms of milk for preparing infant feeding formulas.
10. Evaporated milk enables introduction of more milk in the diet because it is concentrated.
11. Evaporated milk whips. Because of the homogenization it produces a "buttery" flavor and a characteristic texture and consistency in foods in which it is used.

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Description.—Fresh bananas imported from Jamaica, Honduras, Colombia, Canary Islands, Mexico, Panama, Cuba, British Honduras, Hawaiian Islands and Guatemala.

Harvesting, Shipment and Distribution.—Bananas are harvested green even for use in the tropics. Tree ripened fruit loses its flavor, the skin bursts open and the ripened pulp is the prey to insects. The fruit in the proper stage of development is cut from the tree and conveyed as speedily as possible to the ship's hold for shipment. A cargo may consist of 75,000 bunches, a bunch being composed of from six to nine clusters, each consisting of from ten to twenty bananas. The ship's bins are well ventilated and are usually refrigerated. The temperature of the bananas is reduced as quickly as possible to 13 C. and maintained there.

On unloading, the bananas are inspected; damaged or too fully matured fruit is selected out for local distribution. The sound more immature bananas are shipped to the interior. Fruit for distant points is shipped in refrigerated cars under definite temperature and ventilation conditions.

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Chemical Composition (submitted by the company).—

(proximate analysis of properly ripened banana)

	per cent
Moisture	75.3
Ash	0.8
Fat (ether extract)	0.6
Protein (N × 6.25)	1.3
Crude fiber	0.6
Reducing sugars as invert	7.1
Sucrose (copper reduction method)	11.1
Starch (by difference)	3.2
Total carbohydrates other than crude fiber (by difference)	21.4
(Mineral analysis: Sherman, Chemistry of Food and Nutrition)	
Calcium (Ca)	0.009
Magnesium (Mg)	0.028
Potassium (K)	0.401
Sodium (Na)	0.034
Phosphorus (P)	0.031
Chloride (Cl)	0.125
Sulphur (S)	0.010
Iron (Fe)	0.0006

Calories.—0.95 per gram; 27.0 per ounce.

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SATURDAY, DECEMBER 19, 1931

CHEMISTRY'S NEXT SERVICE TO MEDICINE

More than a century ago Laënnec, writing in the first volume of the *Archives générales de médecine*,[1] remarked that the aim of medicine is the cure of disease. For the attainment of this end Laënnec singled out three pathways, described by Cohn[2] as (1) that of the empiricists, who considered it sufficient to distinguish diseases by their apparent signs, (2) that of those who believed it possible to disclose the causes of disease without giving themselves the trouble of learning their effects, and (3) that of those who believed it was necessary to understand the diseases. Cohn adds, by way of interpreting or perhaps of supplementing Laënnec's meaning, that we believe it necessary as the basis of therapeutics to understand the mechanisms, that is to say, the processes which underlie the manifestations of disease, for it is these which it is one of our functions to attempt to correct. That is our practical aim.

For a long time investigators in the domain of the medical sciences have been so deeply engrossed with the efforts to classify diseases and to discover their etiology that practical therapeutics has received somewhat niggardly attention in many quarters. Medical practice has passed through a stage of therapeutic nihilism of which some signs still remain. Obviously, rational therapy depends on the knowledge secured by the intensive study of disease as such; but the relief of suffering and the temporary or permanent correction of defects are inevitable functions of the devotees of medicine. It is not always enough today merely to attempt to reinforce the patient's natural means of defense. The armamentarium of the open minded physician includes for therapeutic purposes drugs, foods, water, serums, vaccines, electricity, heat and cold, mechanical agents, rest, exercise, massage, climate, mental influences and, in fact, whatever physical, chemical and psychic agencies seem to be helpful. To the extent that he may be indifferent to most of these helps he is liable to deprive his patients of some real advantage in the attack on disease.

Students of medicine are sometimes resentful of what they regard as the intrusion of other disciplines or workers in other fields into their domain. This view has been expressed by Cohn in the assertion that a dependence on the outside world for the solution of its problems is in part a reproach to medicine. Probably no injury has yet been suffered, he adds, by society as a result of this dependence. But those advances which depend on knowledge of disease in patients and on actual direct contact with diseased persons have been made by the practitioners of medicine themselves. In this way is to be explained the significance of Sydenham, Jenner and Laënnec; they have taught the use of the classification of diseases, the fact that fevers are preventable, an approach to the diagnosis of visceral disease by means not immediately obvious. These have, after all, constituted the primary advances in medicine. It is this experience which encourages the belief, Cohn concludes, that the development of medicine is in all probability the work of physicians properly trained and supplied with adequate equipment.

In view of the foregoing, it might come as an unpleasant surprise to one not thoroughly conversant with the facts of medical progress to read the title of an essay recently addressed to a group of chemical engineers. The caption was Chemistry's Next Service to Medicine. This contribution, by A. W. Rowe[3] of the Evans Memorial in Boston, deals with the indispensable rôle of the chemist in the preparation of hormones, those substances which are potent regulators of various important bodily functions, such as growth, development, nutrition and reproduction. From drugs to hormones is a relatively simple step. In its pride of accomplishment, medicine must bear in mind that the formal exact study of the action of drugs did not begin until within the lifetime of some living physicians. The first laboratory for the investigation of drugs was established at Dorpat in 1856. Yet chemists had extracted the alkaloid morphine from opium in 1817. Endocrinology, divested of much of its ignorance, misinformation and pretense, seems destined to be one of the major factors in medical progress in the days ahead. The contributions of the chemists in making replacement therapy possible when, as often happens, underproduction of certain hormones leads to the serious effects of endocrine disorder—to serious and even fatal changes in "function level"—deserve frank recognition. Rowe has recalled, for instance, that with their powerful influence on the basic functions of protoplasm any abnormal secretory activity of the individual gland leads to an abnormal expression of those functions over which it exercises a regulating power. End-results such as gigantism, dwarfism, their history may or may not have indicated previous attacks of rheumatism. There was a significant difference, however, between the two groups with normal tonsils and those on whom a tonsillectomy had been done. A high proportion of persons whose tonsils had been removed had had rheumatism.

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[1] Laënnec, R. T. H.: Arch. gén. de méd. **1**: 5, 1823.

[2] Cohn, A. E.: Medicine, Science and Art, Chicago, University of Chicago Press, 1931.

[3] Rowe, A. W.: Chemistry's Next Service to Medicine, Indust. & Engin. Chem. **23**: 1176 (Oct.) 1931.

The medical histories of these students were studied also to learn what relation existed between the tonsils and diseases of the respiratory tract, otitis media and the infectious diseases of childhood. The group with absent tonsils gave a history of a higher incidence of all illness and operations than did either of the other two groups. A possible explanation for this is that children who are often ill were most frequently operated on. The group of women students with normal tonsils and the group with pathologic tonsils differed little in the percentage of the incidence of measles, mumps, scarlet fever, diphtheria, chickenpox, whooping cough, rheumatism, pneumonia, pleurisy, chorea, chronic colds and in operations for appendicitis, mastoiditis, cervical glands and operations on the nose. The age when the tonsils were removed had no influence on the total incidence of measles, mumps, chickenpox, whooping cough, pneumonia and influenza. However, early removal of the tonsils seemed to have a slightly favorable influence on the incidence of scarlet fever and diphtheria.

Considering the large number of tonsillectomies and adenoidectomies that have been performed, it is unfortunate that the literature reveals a great lack of accurate information on the effect of tonsillectomy. Opinions still differ on this old question. There seems to be a growing tendency to question the value of tonsillectomy as a prophylactic measure against infectious diseases and as a cure for rheumatism, chorea and carditis. The report of this study agrees, in general terms, with the report of Collins and Sydenstricker, reviewed[3] in THE JOURNAL in 1928, and also with the studies of Kaiser. It indicates that tonsillectomy is a useful procedure, but the benefits, when a large control group is compared, are not so striking as could be desired.

COOPERATION IN NECROPSY WORK

The percentage of necropsies performed in this country is still lamentably low. A properly performed necropsy is not only necessary in many cases to establish the exact cause of death but is one of the chief means of advancement of medical knowledge. The reasons for failure to obtain necropsies are obvious. The physician in charge of a case lacks the scientific urge, the relatives of the deceased are opposed, and the mortician is, to say the least, cool, because necropsies may disturb the routine of his work. A joint committee of the New York Academy of Medicine, the New York Pathological Society and the Metropolitan Funeral Directors' Association recently held a series of meetings to discuss the problem. A substantial agreement was reached. All agreed that a necropsy by a pathologist is desirable in order to advance knowledge concerning the nature of the disease and to provide reliable records. The performance of necropsies in a hospital is a constant influence to improve the service and to help physicians serve the next patient with greater confidence and skill.

The hospital and its staff have not completed their services to the family on the death of the patient, but they owe to the family an account of what has occurred. This requires that a representative member of the family come to the hospital for a personal interview and to give permission for examination of the body of the deceased. The funeral director must recognize this relationship and should not oppose the discharge of this obligation. Unreasonable delay by the hospital in its attempt to obtain permission for necropsy is objectionable to a funeral director, as it may require him to cancel contracts for transportation and other services and thus increase his expense. The conflict of interests requires mutual consideration and cooperation. Arrangements should be worked out in every hospital whereby the unnecessary loss of time on the part of the funeral director may be obviated. Hospital employees in general must not give information to funeral directors or to any other unauthorized person in regard to persons critically ill or dead in the hospital. The hospital authorities should be certain that the necessary data for a death certificate are on the chart at the time of admission of the patient, with exception of the facts relating to the nature, progress and termination of the disease. Any interference by a funeral director with the legitimate efforts of the hospital to obtain permission for necropsy shall be regarded as a reportable grievance. The necropsy may be performed in a way to facilitate the work of the embalmer. The main longitudinal incision, the committee believes, should end over the midsternum, and curved incisions with the concavity toward the head should be carried laterally to each shoulder. When the skull is opened, the frontal bone should be cut above the hairline and the base of the skull cemented with plaster before the skull cap is replaced. When the neck organs and tongue are removed, the head should be embalmed through the carotids unless there is a serious contraindication. Other recommendations made by the committee as to technic are that necropsies should be completed at the time promised, if there has been an advance agreement, and that a representative of the funeral director should be a welcome associate at the necropsy table. The spirit of cooperation shown in the report of the joint committee is commendable. Similar cooperation everywhere would no doubt result promptly in an increase in the percentage of necropsies.

Gradually, competent embalmers are tending toward the encouragement of postmortem examination. In timony? He went boldly outside the sources of information to which judges ordinarily resort and personally consulted such medical books as were available. The value of his written opinion is enhanced by his citations to the medical books he consulted and by his quotations from them. To a lawyer it may seem dangerous for a judge to base a ruling on what he has read in medical books not admitted as evidence. The rules of evidence almost everywhere forbid the introduction of such books as proof of the facts and theories stated in them. An apparent exception to the general rule denying the admissibility in evidence of medical books is sometimes made where an expert witness testifies that he bases his opinion on the work of a particular author. In such a case, however, the particular work may be introduced in evidence solely for the purpose of contradicting and thereby discrediting the witness. In the present case, so far as the record shows, the books consulted were not offered in evidence by the parties to the cause and they had no opportunity of advising or objecting with respect to their use. Probably the greatest danger in the method adopted by Judge McDowell, however, lies in the paucity of medical books ordinarily available to a judge for consultation and in his limited ability to appraise unaided the weight of the statements of fact and of opinion in the books that he consults. It is one thing for a judge to consult a law book for guidance, and another and quite a different thing for him to consult a medical book. Any law book that is likely to be consulted is based on authority, and the sources of such authority are stated, so that the accuracy of the book can be determined by any competent lawyer. In medicine, however, there are no "authorities" comparable to the authorities in the legal world, and the value of a medical book depends on the knowledge, skill, experience and moral courage of the writer, with none of which the average judge is apt to be acquainted. From a legal point of view the very fact that the book of any given medical writer is consulted as a possible basis for a legal decision makes the author a witness—a secret witness unless the parties to the cause are fully advised concerning the matter—a witness not under oath and not subject to cross-examination, whose testimony is by those very circumstances inadmissible.

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[3] Tonsillectomy in the United States, editorial, J. A. M. A. **91**: 1195 (Oct. 20) 1928.

The course adopted by Judge McDowell, however, wisely pursued as he seems to have pursued it, is a course that should no doubt be encouraged. Probably the best plan for any judge to follow, if he desires to emulate Judge McDowell's example, would be to seek guidance through the nearest available organized medical library, or through the state or county medical association, or even through the American Medical Association. Possibly the day may come when judges will be provided with the aid of official medical advisers to help them over the difficulties that beset the nonmedical reader when he tries to find his way through the mazes of medical bibliography.

Current Comment

PREPARING A PEDIGREE

The importance of heredity in relation to disease is generally recognized. Unfortunately, however, few realize that the study of heredity is a scientific problem and that the language and technic of studies in heredity are specific to that science. A study of heredity charts in various periodicals will indicate to any observer the necessity for uniformity in the use of various symbols and the desirability of completeness. Since heredity charts are likely to be used fifty or a hundred years after they are first prepared as well as at the time of their first publication, and since they are likely to be studied by investigators in various parts of the world, the need for simplicity and accuracy becomes still more apparent. The Eugenics Society of Great Britain [1] has prepared for those especially interested a pamphlet entitled "How to Prepare a Family Pedigree" and a book of forms, charts and directions to be used by those who undertake such studies. The forms are concise; the directions take into account all the considerations that have been mentioned. The current tendency in medicine toward greater attention to problems of constitution and heredity indicates still further the desirability of this material.

SIR DAVID BRUCE

The cabled news of the daily press announced the death, November 27, of Major General Sir David Bruce in England at the age of 76 years. Sir Ronald Ross, himself one of the distinguished investigators of our day, is said to have described Bruce as one of the medical geniuses who served the British Empire. He will long be remembered for his contributions to our knowledge of trypanosomiasis, or African sleeping sickness. The malady has long been known; indeed, there are references more than two hundred years old mentioning a sleeping distemper among Negroes of the Guinea coast. Not until the present century was the etiology of this disease put on a sound basis. First, actively moving bodies were observed in the blood of patients. The motile agents were presently identified as trypanosomes. It was the merit of Bruce and his co-workers to have demonstrated that there are insect vectors for the causative micro-organisms, tsetse flies being the offenders. The so-called Gambian sleeping sickness is now widely distributed in the tropical zone of Africa. As first shown by Bruce, the Gambian parasite, Trypanosoma gambiense, is normally transmitted by the tsetse fly Glossina palpalis, and its distribution is now almost coincident with the range of this species. According to Hegner,[1] the indications at present are that Trypanosoma gambiense and Trypanosoma rhodesiense, the recognized organisms of African sleeping sickness, are usually transmitted by the tsetse flies belonging to the species Glossina palpalis and Glossina morsitans. Other species of the genus are being carried out. The results of a survey of ways and means of promoting greater safety for the public in the handling of motor traffic are to be announced later.

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[1] How to Prepare a Family Pedigree, issued by the Eugenics Society, 20, Grosvenor Gardens, London, S. W. 1; price, sixpence.

[1] Hegner, R. W.: The Transmission of Human Protozoa, Science 64: 28 (July 9) 1926.

ILLINOIS

Personal.—With the creation of a new health office, that of county epidemiologist, the position of health officer of DuPage County has been discontinued. William V. Hopf, D.D.S., Lombard, who was the health officer, will assume the duties of the new office.

Society News.—The Fulton County Medical Society was addressed, December 1, in Canton, by Dr. Frank E. Simpson, Chicago, on the use of radium in malignant tumors, and Dr. Paul G. Dick, Chicago, treatment of malignant conditions with X-rays; Dr. Josiah J. Moore, also of Chicago, gave a demonstration of the Canti cancer film.——Drs. Bransford Lewis and Alphonse McMahon, both of St. Louis, addressed the Sangamon County Medical Society, Springfield, December 3, on "A Survey of Urology for the General Practitioner" and "Differential Diagnosis Between Early Tuberculosis and Hyperthyroidism," respectively.——Dr. Samuel M. Feinberg, Chicago, addressed the Rock Island County Medical Society, December 8, on "Allergy in General Practice."——Dr. Frederick A. Baumgart was elected president of the newly created Danville Medical Society, and Dr. George T. Cass, secretary.——The Jo Daviess County Medical Society was addressed at Warren recently, among others, by Dr. Karl B. Rieger, Freeport, on "Thrombo-Angiitis Obliterans."——The Clinton County Medical Society was addressed at Carlyle, November 17, by Drs. William S. Carter, Trenton, and J. P. Murphy on "Otitis Media, Middle Ear Infection" and "Relation of Eyestrain and Headaches," respectively.——At the meeting of the Perry County Medical Society, December 3, Dr. Frank F. Maple, Chicago, spoke on "Abortion and Its Treatment," and Dr. James H. Hutton, Chicago, "Recent Advances in Endocrinology."

Chicago

Society News.—Edwin O. Jordan, Ph.D., was elected president of the Institute of Medicine of Chicago at its annual meeting, December 1; Dr. Arthur R. Elliott, vice president; Dr. George H. Coleman, secretary, reelected; Dr. John Favill, treasurer, and Dr. Ludvig Hektoen, chairman of the board of governors. Dr. Otto L. Schmidt gave the presidential address on "The Rôle of Medical and Hygienic Museums in Education."——Dr. Morris Fishbein addressed the Historical Club of the University of Illinois College of Medicine, December 2, on "The Future of Medicine."——The Chicago Gynecological Society was addressed, December 18, by Drs. Milton J. Summerville and Frederick H. Falls on "A Critical Study of the Technic and Clinical Value of the Sedimentation Rate in Gynecology"; Jacob P. Greenhill, "Thymophysin and Weak Pituitary: Comparison in 40 Cases," and Richard A. Lifvendahl, "A Sign for the Detection of Small Amounts of Free Blood in the Abdomen."——The Chicago Pediatric Society was addressed, December 15, among others, by Dr. Henry E. Irish on "Effect of Cod Liver Oil-Skimmed Milk Feeding on Bones After One Year."——The Chicago Neurological Society was addressed, December 17, among others, by Dr. Isadore Pilot on "Putrid Brain Abscess—Its Pathogenesis."——At the meeting of the Chicago Society of Allergy, December 21, Dr. Harry L. Huber, among others, will speak on "Dermatitis Due to Burweed Marsh Elder."——Drs. Thomas D. Allen and Ramon Castroviejo will address the Chicago Ophthalmological Society, December 21, on "The Autonomic Nervous System and the Eye" and "A New Knife for Ophthalmic Surgery," respectively.

KANSAS

Photographic Service.—The photographic department of St. Francis Hospital, Wichita, recently announced that its service is available to all physicians who desire it. The work will be done on a cost basis, a charge of $1 having been decided on for one photograph. The service comprises the production of clinical photographs of patients and gross specimens, photomicrographs, the copying of charts, drawings and printed or typewritten data, and the making of lantern slides. The photographic department is supervised by the pathologist of the hospital, although it is operated as an independent unit.

Society News.—The Labette County Medical Society was addressed, November 18, by Drs. Earle G. Brown and William C. Menninger, Topeka, on infantile paralysis.——The Franklin County Medical Society was addressed, November 21, by Drs. Sherwin E. Mella and Robert Lee Hoffmann, both of Kansas City, on "Diagnosis and Treatment of Common Skin Diseases" and "Urology," respectively.——The Wyandotte County Medical Society was addressed, November 14, by Drs. Elam A. Reeves, Kansas City, on "Placenta Praevia"; Earle G. Brown, Topeka, "Epidemiology of Infantile Paralysis," and James R. Elliott, Kansas City, Mo., "Management of Poliomyelitis During the Stage of Recovery."——The Harvey and Sedgwick county medical societies, in joint session at Newton, were addressed, November 3, by Drs. Arthur Steindler, Iowa City, on hip and back sprains and their connection with compensation cases, and James A. Wheeler, Newton, vitamins. Dr. Henry N. Tihen, Wichita, addressed the Sedgwick County Medical Society, November 20, on "Medical Organization."

MICHIGAN

Personal.—Dr. Alden G. Sheets has been appointed health officer of Eaton Rapids.——Dr. Lloyd S. Dunkin has been appointed health officer of Greenville to succeed the late Dr. Will H. Lester.

Dr. Moll Honored.—The Genesee County Medical Society tendered a testimonial dinner, October 28, to Dr. Carl F. Moll, Flint, president of the Michigan State Medical Society. The toastmaster was Dr. Frank E. Reeder. The program included talks by Dr. Moll; Dr. Frederick C. Warnshuis, Grand Rapids, on the state medical society; Judge V. W. Dodge, the physician and the probate court; Dr. Clyde C. Slemons, Grand Rapids, the physician and the state board of health, and Dr. Leslie L. Willoughby, the Genesee medical society.

Society News.—Dr. James D. Bruce, Ann Arbor, addressed a joint meeting of the Berrien County Medical Society and the dentists of the county, November 23, on "Focal Infections and Their Relations to Systemic Disease."——A symposium on infantile paralysis featured the meeting of the University of Michigan Pediatric and Infectious Disease Society, Ann Arbor, November 19-20.——Dr. Ralph Pemberton, Philadelphia, addressed the medical section of the Wayne County Medical Society, December 8, on "The Newer Outlook on Chronic Arthritis."——Dr. Harry W. Plaggemeyer, Detroit, addressed the Hamtramck Medical Society, November 20, on the activities of the Wayne County Medical Society.——Judge Charles B. Collingwood, Lansing, addressed the Calhoun County Medical Society, December 1, on "The Doctor in Court."——The Washtenaw County Medical Society, Ypsilanti, conducted a symposium on cancer at its meeting, November 24; the speakers included Drs. Frank L. Rector, Evanston, Ill., Max Ballin, Detroit, and Conrad Georg, Sr., Eugene B. Potter and Mark Marshall, all of Ann Arbor; Dr. George F. Inch addressed the society, among others, December 11, on "Importance and Necessity for Early Diagnosis and Treatment of Mental Cases."——Dr. William H. Alexander, Iron Mountain, addressed the Dickinson-Iron County Medical Society, December 3, on "Some Surgical Problems in Pulmonary Tuberculosis."——Dr. Karl A. Menninger, Topeka, Kan., addressed a joint meeting of the Wayne County Medical Society and the Detroit Society of Neurology and Psychiatry, December 15, on "Focal Suicide: Psychogenic Aspects of Physical Disease."

MINNESOTA

Personal.—Dr. Jay Arthur Myers has recently been promoted from associate professor to professor of preventive medicine at the University of Minnesota School of Medicine, Minneapolis.——Dr. Lincoln A. Sukeforth, public health director of Duluth, has retired after eight years' service.——Dr. Joseph A. Roy, Red Lake Falls, was elected mayor of that city in November.

Licenses Revoked.—At a meeting of the Minnesota State Board of Medical Examiners in St. Paul, November 10, the license of Dr. John Gerardi Halland, Motley, was revoked because of his habitual indulgence in the use of drugs. The license of Dr. David Gordon, Minneapolis, was also revoked at this meeting as the result of his conviction on nine counts of violating the Harrison Narcotic Act. Dr. Gordon was sentenced to eighteen years' imprisonment at Leavenworth. This was his second offense.

Society News.—Dr. Emil S. Geist, Minneapolis, addressed a joint meeting of the West Central and Kandiyohi-Swift county medical societies recently on "Treatment of Fractures."——The Washington County Medical Society was recently addressed by Drs. John C. McKinley, Minneapolis, and Wallace H. Cole, St. Paul, on infantile paralysis.——Dr. Frederic E. B. Foley, St. Paul, addressed the Minnesota Academy of Medicine, December 9, on "Embryology and Surgical Correction of Certain Renal Malformations." Dr. Irvine McQuarrie, Minneapolis, gave a thesis on "Some Recent Observations Regarding the Nature and Treatment of Epilepsy in Children."

fiore Hospital.——Drs. James K. Everhart and Henry T. Price, among others, addressed the Pittsburgh Academy of Medicine, December 8, on "Transfusion in Infancy," and "Leukemia in Children," respectively.——Dr. Jesse O. Arnold, Philadelphia, addressed the Lycoming County Medical Society, Williamsport, December 11, on "Cause and Control of Eclampsia."

Philadelphia

Changes at Temple University.—Dr. Hugo Roesler, formerly of the University of Vienna, Austria, was recently appointed assistant professor of radiology at Temple University School of Medicine. Recent promotions include those of Drs. George W. Deitz, to associate professor of cardiovascular diseases of children; Edward C. Davis, to assistant professor in proctology; Thomas Carroll Davis, to assistant professor in rhinolaryngology and Samuel Goldberg, to clinical professor of pediatrics.

Society News.—The Philadelphia Association of Retail Druggists entertained Philadelphia physicians at a smoker, December 4. Addresses on the cooperation of the two professions were delivered by Drs. George C. Yeager, W. Burrill Odenatt and John O. Bower, and Prof. Ernest Fullerton Cook, Pharm.M., among others.——A symposium on juvenile delinquency was conducted at the meeting of the Philadelphia Psychiatric Society, December 11. Speakers were Drs. Frederick H. Allen, Samuel Leopold and James S. Plant, Newark, N. J., and Judge Paul N. Schaeffer, Reading.——Dr. Abraham Flexner, New York, addressed the College of Physicians of Philadelphia, December 14, on "The Graduate School and Full Time Teaching."——Dr. Charles E. G. Shannon delivered the postgraduate seminar of the Philadelphia County Medical Society, December 11, on squint as encountered by the general practitioner.——Dr. Hubley R. Owen addressed the Philadelphia Academy of Surgery, December 7, on "The Problem of Delayed Union and Ununited Fractures."——Drs. Hugh W. Josephs, Baltimore, and David L. Drabkin addressed the Philadelphia Pediatric Society, December 8, on "Nutritional Anemia: Its Prevention and Treatment" and "Recent Progress in Experimental Anemia," respectively.——The annual banquet of the Medical Alumni Association of the Medico-Chirurgical Society of Philadelphia was held, November 19. Dr. John J. Dailey, McAdoo, was elected president.——Dr. John A. McGlinn, among others, addressed the Obstetrical Society of Philadelphia, December 3, on "Reconstruction of the Urethra."——Dr. Louis Edeiken, among others, addressed the Philadelphia Roentgen Ray Society, December 3, on "Stimulating Doses of X-Rays for Amenorrhea and Sterility."——Dr. George E. de Schweinitz addressed the American Philosophical Society, December 4, on "Toxic Amblyopias with Especial Reference to Methyl Alcohol."

SOUTH CAROLINA

Society News.—Among speakers before the Fifth District Medical Society, Chester, November 1, were Drs. Robert W. McKay, Charlotte, N. C., on "Urological Problems of the General Practitioner"; William J. Henry, Chester, "Glandular Fever," and Hugh P. Smith, Greenville, "Primary Hypochronic Anemia."

Grant for Research on Goiter.—Bernard M. Baruch, New York, has recently given $13,000 to the South Carolina Food Research Laboratory at the Medical College of the State of South Carolina, Charleston, for investigations into the relation of diet to simple goiter. Seasonal and other variations in the amount of iodine available normally in the environment of persons in goitrous and nongoitrous regions will be studied. Goiter is not endemic in South Carolina.

TENNESSEE

Society News.—Dr. George I. Baker addressed the Knox County Medical Society, Knoxville, November 17, on "Management of Diabetes in Children." Dr. Harvey J. Howard, St. Louis, addressed the society, November 23, on "Mechanism of Defense of the Mucous Membrane."——Dr. Richard A. Barr addressed the Nashville Academy of Medicine, November 17, on appendicitis, with a review of 500 cases subject to operation. Other recent speakers have been Drs. John S. Cayce, November 3, on "Treatment of Hyperemesis Gravidarum," and William R. Cate, November 10, "Relationship of Hypertension and Nephritis."——Dr. John E. Frazier, Newbern, was elected president of the Walnut Log Medical Society, comprised of physicians of western Kentucky and Tennessee, at its meeting, November 13-14, at Walnut Log, on Reelfoot Lake. Among speakers at the meeting were Drs. Willard Bartlett, St. Louis, on "Results of Experience with Barbituric Acid Compounds for Surgical Anesthesia"; Peter Whitman Rowland, Jr., Memphis, "Immediate and Ultimate Prognosis of Certain Types of Cardiovascular Disease"; William T. Black, Memphis, "Differential Points in Diagnosis of Pelvic Masses," and Ernest H. Baird, Dyersburg, "Diseases of the Gallbladder."——The Tennessee Hospital Association will hold its annual meeting jointly with the Kentucky Hospital Association at Memphis in April, 1932, it has been announced.——Drs. Perry Bromberg and Samuel S. Riven, Nashville, addressed the Blount County Medical Society, Maryville, November 14, on "Renal Calculi" and "Thyroid Heart," respectively. The Knox and Monroe county medical societies were guests at the meeting.——Dr. John S. Freeman, Springfield, was elected president of the Middle Tennessee Medical Society, at its seventy-fourth semiannual meeting, November 6, at Fayetteville. The next meeting will be held in Sparta in May, 1932.——Dr. Edward C. Mitchell, Memphis, among others, addressed the medical society of Hardin, Lawrence, Lewis, Perry and Wayne counties, Savannah, October 22, on pyelitis and other diseases of the kidney.——Dr. Howard P. Hewitt addressed the Chattanooga and Hamilton County Medical Society, November 12, on "Prenatal Care and Management During Labor and Puerperium."——Dr. James L. Morton, Shelbyville, addressed the Bedford County Medical Society, November 19, on apoplexy.

TEXAS

License Revoked.—The license of Dr. Pedro M. Hernandez, Corpus Christi, was revoked, November 20, by the judge of the one hundred and seventeenth district court of Nueces County in a suit brought by the state board of medical examiners. The suit was based on the allegation that the license was obtained by fraud in that Hernandez had represented himself as a graduate of the National University School of Medicine of Mexico, whereas he had not attended or graduated from that school.

WEST VIRGINIA

Personal.—Dr. Vinton A. Selby, Clarksburg, resigned, November 1, as health officer of Harrison County and was succeeded by Dr. Americus J. Kemper, Lost Creek.

Society News.—Dr. Haven Emerson, New York, conducted a two-day institute for health workers during the meeting of the West Virginia Public Health Association, held at Morgantown, November 19-21. His subjects were "Preventable Disease from the Standpoint of the Public Health Official and the Medical Profession" and "Public Health Practices and Standards." Other speakers were Drs. John L. Lavan, Toledo, Ohio, on immunology, and Estella Ford Warner of the U. S. Public Health Service on the status of West Virginia's health program. Dr. William J. MacDonald, Wellsburg, was elected president and Dr. David Littlejohn, Charleston, secretary.——Dr. John R. Caulk, St. Louis, addressed the Ohio County Medical Society, Wheeling, December 11, on "The Cautery-Punch Operation." Dr. David Silver, Pittsburgh, addressed the society, December 4, on "Future Progress in the Care of the Cripple."

GENERAL

Radiological Society Awards Medals.—Two gold medals for distinguished service in the field of radiology were awarded to physicians at the recent meeting of the Radiological Society of North America in St. Louis. Dr. Carlos Heuser, Buenos Aires, Argentina, who was the guest of the society for the meeting, received a medal in recognition of work in methods of making roentgenograms for the study of pregnancy. Dr. Maximilian J. Hubeny, Chicago, was awarded a medal in honor of his research on the determination of dental focal infection, the injection of the sphenoid sinuses with a suspension of barium sulphate and oblique projection in the examination of the lumbar spine. Dr. Francis Carter Wood, New York, was elected president and Dr. Byron H. Jackson, Scranton, Pa., was made president-elect of the society; Dr. Donald S. Childs, Syracuse, N. Y., was elected secretary. The officers will assume their stations January 1.

Operations for Removal of Cataracts in India.—A group of American surgeons plan to perform about 100 operations for the removal of cataracts each day in India during the winter months, according to a recent report. The work is under the direction of Dr. Henry T. Holland, Shikarpur, who holds an annual eye clinic at the Seth Heranand Charitable Eye Hospital. The American physicians include, it is reported, Drs. Walter I. Lillie, Rochester, Minn.; Oscar B. Nugent, Agnes Beulah Cushman and Louis Bothman, Chicago; Watson W. Gailey, Jr., Bloomington, Ill., and Joseph J. Hompes, Lincoln, Neb. Certain sections of northern India are said to be characterized by a greater prevalence of cataracts than any other section of the world; some of the causes for this condi-

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 21, 1931.

Research on the Cause of Cancer

It may be remembered that in 1925 Dr. W. E. Gye, with the help of the microscopist Mr. J. E. Barnard, F.R.S., brought forward the theory that cancer is due to the cooperation of a virus (consisting of minute spheroids rendered visible by dark-ground illumination and photographed by ultraviolet rays) and a "specific factor." His researches attracted world-wide attention, but his theory was not considered established. Dr. Gye, however, was so convinced of its truth that he retired to the laboratories of the National Institute for Medical Research and now, after six years' patient work, has produced, in conjunction with Dr. W. S. Purdy, a book on the cause of cancer which embodies his later researches. The authors are satisfied, contrary to the prevalent view, that cancer is a parasitic disease. They attribute the difficulty of accepting their view to the complexity of the mechanism involved: two components of a widely different nature, neither of which can act alone. Dr. Gye has shown that malignant tumors can be produced in chickens by injecting extracts of tumors rendered free from cancer cells. He did this with the Rous sarcoma, verifying the results obtained by Rous. It has been argued, however, that Rous sarcoma is not a true cancer and that therefore the results are not applicable to the latter disease. Dr. Gye is now able to report that he has been able to extract from cancer a "something" which, when added to an extract of the Rous sarcoma treated in such a way as to destroy all virus or living organism, caused a growth when injected into a chicken. The deduction seems to be that the cancer also contains the living organism. This is the crucial experiment of the series, but it cannot yet be repeated with reasonable regularity. Hence it is concluded that "the question of the direct demonstration of viruses in new growths of mammals remains in a disappointingly inconclusive state. The subject has more than theoretical importance. There is an immediate practical aspect. If methods of handling mammalian viruses and of classifying them by immunity experiments could be discovered, then, since we have shown that large animals produce antiviral antibodies readily, the way to prophylactic immunization of man against cancer would be available." This is the immediate and urgent problem of cancer research. So far, the opinions of experts is guarded. Dr. J. A. Murray, director of the Imperial Cancer Research Fund Laboratory, says that Dr. Gye evidently recognizes the difficulties of the investigation and the extent to which the demonstration is not conclusive. Without a more careful consideration of Dr. Gye's new presentation of his views, Dr. Murray would not commit himself to any fuller statement. Professor McIntosh, director of the Cancer Research Laboratories, Middlesex Hospital, says: "The book is an important contribution to our knowledge of cancer."

Fewer Fatal Accidents

The continued attempts to reduce the fatal accidents from automobile traffic are at last bearing fruit. In the first nine months of this year there was a reduction of 10 per cent in accidents resulting in death, but a small increase was shown in other accidents. Last year an average of twenty persons a day were killed in the streets. In each of the last ten years the number has exceeded that of the previous year, but this year there were 293 fewer deaths than in the corresponding period of 1930. There was a slight increase in the total number of accidents, from 95,995 to 102,187, but this rise is held probably to be due to the fact that under the new road traffic act accidents must now be reported to the police, who thereby get to hear of more nonfatal accidents than in the past. Lieut. Col. J. A. A. Pickard, general secretary of the National Safety First Association, commenting on these facts, said that they were a source of great satisfaction to the association. They proved that the pessimists were wrong who prophesied that the passing of the road traffic act and the abolition of the speed limit would result in twice as many people being killed on the roads. The figures confirmed the association's observations that not only were automobile drivers generally showing more consideration to other road users but pedestrians were doing their share by being more alert and careful. Much of the credit was due to the local safety first councils, of which there were now nearly fifty.

Another Gigantic Nursing Home

Arrangements are made for the erection of a nursing home in the Marylebone Road, the consulting quarter of London, with 600 beds for patients, and hotel accommodations for relatives and friends, at a cost of $5,000,000. It is proposed to erect a building of nine stories, containing full facilities for all varieties of spa, electrical and other medical treatments, which will be available both for residents and for outpatients. It is anticipated that it will be possible to limit the charges of the nursing home to $5 a night and to reduce considerably the charges for many varieties of medical treatment. At present it is only in the hospitals that such facilities exist for medical treatment, and as a rule these are not used by the well-to-do. The latter are nursed in their own homes or in the small nursing homes, of which the facilities are very limited. The plan includes lounges of the hotel type, a roof garden laid out to give the greatest possible amount of sun and shelter, a pump room where every variety of medicinal water will be available, and a gymnasium for therapeutic purposes. It is intended to extend the scheme to Liverpool, Manchester and other large cities.

Award to Dr. W. B. Cannon

The Baly medal of the Royal College of Physicians is awarded every alternate year to the person who is deemed to have most distinguished himself in the science of physiology, especially during the two years immediately preceding. It has been awarded to Dr. W. B. Cannon, professor of physiology at Harvard. In presenting it, the president, Lord Dawson, described Dr. Cannon's contributions to knowledge as a monument of industry and achievement. Since Dr. Cannon took his M.A. degree in 1897, scarcely a year has passed that has not shown a harvest from his labors. Lord Dawson therefore could refer only to such pieces of his work as appeared to be landmarks. His first period, 1898-1910, was concerned with the experimental study of the movements and digestive activities of the alimentary tract, by means of the roentgen rays after opaque substances had been swallowed or injected. This work had recast our knowledge of digestion. In his second period, Cannon passed to the study of the effect of emotional states on gastro-intestinal function and thence to the physiology of the suprarenals—the association between epinephrine and fear, anger and hunger. Then came the war, and he worked in a casualty clearing station on the British front and later with General Finney of the U. S. Army at Dijon. Since the war he had been engaged in research into the function of the sympathetic, including the part played by it in the internal secretions.

In reply Dr. Cannon said that, over and over again, researches carried out in one direction proved by accident to be fruitful in another, and this had happened to him. The director of a scientific institution should always remember that the stimulus to work and the active cooperation received from students and collaborators must be taken into account when an individual is selected for personal award.

epidemic forms. The prognosis depends on various factors, such as the age of the patient and the time of the development of complications involving the nervous system. The author spoke also of the treatment of encephalitis by means of injections of serum of convalescents.

Professor Bergamini of Parma considered the chronic forms of encephalitis and the sequels that occur in children. Also in these cases the subject is complicated by the difficulty of classifying forms of diverse symptomatology. The speaker explained both the psychic and the neurologic forms and emphasized that the prognosis of the chronic types of encephalitis must be very reserved, owing to the possible appearance of late and new symptoms.

Professor Midulla, delegate of the Opera Nazionale Balilla, explained the activities of the society that he represented, in addition to its educational work. He spoke of the service organized in the ambulatoriums and in the consultation centers, and of the adoption of the biotypologic record card, with which two million youths are now provided. He took up then the prophylactic work against social diseases and insurance against accidents, which have decreased in number in spite of the increase in the number of persons insured. The congress passed a resolution commending the activities of the Opera Balilla in the promotion of health and robustness of children and the human race.

Professor Galeazzi emphasized the need of collaboration on the part of pediatricians to organize a system of aid for lame, paralytic and mutilated children.

After the general discussion on encephalitis, the congress passed a resolution, presented by Professor Frontali of Padova, pertaining to the possible relations between vaccination against smallpox and the appearance of encephalitis. Since in recent years there has been developing, in medical circles and among the public, an exaggerated fear of smallpox vaccination, owing to the observation of cases of encephalitis following vaccination, the congress thought it advisable to announce that the vaccinal etiology is far from being demonstrated, and to urge that no changes be made in the laws and the practice of compulsory vaccination, which is the sole protection as yet known against epidemics of smallpox.

Professor Spolverini, director of the Clinica pediatrica in Rome, announced a new technic in artificial feeding. In spite of the fact that the best adapted food is used (cow's milk), and the most precise rules are followed, artificial feeding often gives results that are anything but satisfactory and commonly constitutes an ever present menace, especially in the institutes to which large numbers of nurslings are admitted. Studying the problem of cow's milk from the point of view of colloidal equilibrium, Spolverini and his co-workers succeeded, by means of the addition of a so-called colloid protector, in modifying the intimate structure of some constituents of cow's milk (particularly the casein), so as to bring about that certain phenomena of digestion (precipitation, coagulation and other processes) may be completed in almost the same manner as in the case of human milk. The colloid protector best adapted for the purpose has been found to be acacia. In applying this method for four years in his clinic, Spolverini has obtained very favorable results, aided by researches and laboratory examinations, and he expressed the hope that his colleagues might try the method and that they would confirm his observations.

DIETARY REGULATIONS FOR GROUPS OF CHILDREN

The last day of the congress was devoted to the elaboration of the topic "Dietary Regulations for Collective Groups of Children." The first speaker, Professor Macciotta of Cagliari, discussed the food requirements and the methods of determining them, emphasizing the importance of the surrounding conditions and of the constitutional status of the individual. He considered the alimentary value of the principal foods, pointing out that the most important source of vegetable proteins and carbohydrates lies in cereals. Professor Brusa of Milan spoke on alimentation in the first year of life and took up the diet of wetnurses. Professor Lucca of Turin explained the criteria to be followed in choosing the diet of older children up to the time of adolescence—criteria which vary according as it is a question of complete alimentation (continued stay in an institution) or partial alimentation (admission for part of the day), and dependent also on the age and the constitution of the person. The discussion was taken up by Professor Mouriquand of Lyons, Professor Bergamini of Parma, Dr. Capecchi, and others.

After a general discussion, the conventionists took a trip to Siena and then proceeded to Perugia, where the congress closed. Professor Allaria was chosen president of the society and Professor Valagussa was elected vice president. Rome was selected as the meeting place for the next congress.

International Congress of Surgery

At the ninth International Congress of Surgery, to be held at Madrid in *1932*, the delegates from Italy will be Prof. Leonardo Dominici of Perugia, who will discuss "Diagnosis and Treatment of Intraspinal Tumors;" Professor Lusena of Genoa, who will consider "Surgery of the Esophagus," and Professor Uffreduzzi of Turin and Dr. Lorenzetti of Milan, who will describe "The Recent Advances in Surgical Anesthesia."

BERLIN

(From Our Regular Correspondent)

Nov. 2, 1931.

Modifications in Hospital Construction

The economic crisis has brought about marked retrenchments wherever it has been possible. In Berlin three hospitals have been closed entirely; in others, certain departments have been abolished. Nevertheless, in the opinion of many persons, there is need of a private hospital for the middle class, with moderate prices. Hence, in spite of the stress of the times, born of a certain courageous, optimistic spirit, a 100-bed hospital (landhausklinik) has been erected in Wilmersdorf (near Berlin) by the Vaterländischer Frauenverein, affiliated with the Red Cross Society. The new institution combines in a practical arrangement and with pleasing architectural features three functions in three partially separated buildings: the clinic, the aerztehaus and the nurses' pavilion. The aerztehaus, for the accommodation of the fifteen physicians on the staff, forms a right angle with the clinic building. At the apex of the angle are the entrances, the staircases, the elevators and the administration offices, so that, aside from the soundproofing, which was carried out with great care, all the essential noise-makers of the whole building are concentrated in one corner. The clinic comprises sixty rooms of uniform character, all provided with balconies toward the south and roll-back windows, in three parts, extending to the floor (for fresh-air treatment and the like). Perfect technic in the service of health is combined with comfort, which is accomplished through the shape of the rooms, the color scheme and the furnishings. The culinary department is managed by a well known restaurant chain, under medical supervision (an excellent innovation). For all the prescribed diets special menus are presented for the patient's choice, without the normal charges fixed by contract being exceeded. The clinic is managed from a caritative point of view on a non-profit-sharing basis and is thus not a private sanatorium in the ordinary sense; nor is it a hospital but is in a class by itself. In a period of social readjustment, which in its destructive phase is not yet completed, this institution is a good idea brought promptly to realization, which will bring aid and hence encouragement to the middle class, which is at present most endangered. At the same time the cost per bed, including the building costs for the clinic, nurses' pavilion and the aerztehaus with all its furnishings, was under $2,000.

his right arm had to be amputated. There developed, however, soon afterward a carcinosis of the skin of the thorax, with metastases in the abdomen, which hastened the end. Holzknecht was one of the first to recognize the significance of Roentgen's discovery for the progress of medicine. With his keen insight, he was able to separate the essential from the insignificant and to utilize it for research and diagnosis. Roentgen's discovery dates back to 1895. Six years later, Holzknecht published his "Atlas der Erkrankungen des Thorax," which gives evidence of his genius and his almost prophetic insight. Soon afterward he published his articles on "The Roentgenologic Diagnosis of Disorders of the Digestive Apparatus." Of great importance was his construction of the dosimeter for the measurement of the dosage of roentgen rays, which made possible the general use of the rays for therapeutic purposes and is known everywhere as the H instrument. This great medical achievement goes back to 1902. The Holzknecht unit is still employed. Holzknecht's importance as a creative guide was soon recognized, and, in spite of bureaucratic obstructionists, he succeeded in organizing the Central-Röntgen-Institut in the Vienna General Hospital and to make it one of the greatest institutes of the kind. Here a Holzknecht "school" developed, from which countless promising pupils have gone forth to occupy prominent positions in all parts of the world. From here have gone out the methods for the location of foreign bodies (projectiles), and the diagnosis of gastric cancer, kidney stones and cranial disorders. Holzknecht's fame was greater abroad than at home. He was generally regarded as the leading figure in roentgenology, and his work on roentgen injuries is a classic. The tragedy of his life was that he was doomed to die from such injuries. Thirty years ago, before he had invented his dosimeter, he observed in himself the first signs of roentgen "burns." His long-drawn-out illness did not, however, prevent him from continuing his research.

Inaugural Lecture of Prof. Dr. Denk on Cancer

Dr. Denk, the newly appointed professor for the first chair of surgery at the University of Vienna and the successor of Professor Hochenegg, began his lectures with a comprehensive inaugural address, delivered before a large audience composed of professors and students, on "The Modern Methods of Combating Cancer." After paying respect to his predecessor, he emphasized that his predecessor's chief care was the study of neoplasms. Continuing this tradition of the Vienna "school," he stated that he would likewise regard the combating of cancer as a most important need, in order that the continuity of the work of Professor Hochenegg might not be interrupted. The chief needs looking toward the cure of cancer are early diagnosis and early operation, the combating of recurrences, and the detection of persons who are threatened with cancer. To this category belong patients with precancerous disorders, subjects with hereditary tendencies to cancer, twins one of whom has already developed cancer, and the like. Periodic examinations with a view to prophylaxis are quite in order, which imposes an important rôle on the family physician, especially if it should prove possible to perfect the tests for cancer that are now available. In Graz (Styria), where Professor Denk has served as director of the clinic, he made use of the existing welfare services and applied control tests to persons operated on, thereby building up an organization that achieved favorable results. Periodic health examinations may become valuable as a means of promoting early diagnosis and treatment. On the other hand, postoperative supervision by welfare workers is an important measure to combat recurrences in season. Dr. Denk elaborated in Graz many new operative methods, which have made the operation on cancer much easier and more effective. Likewise radium treatment will contribute in great measure to an improvement in the operative results. With reference to the bloodless methods, the clinic must carry out just as careful researches, which (for the time being, at least) should be based chiefly on animal experimentation and on observations and use as postoperative treatment. In any event, Professor Denk expects from these researches, especially from the prophylactic side, great progress. A center for the detection of all cancer patients in Vienna is, in his opinion, an absolute necessity, in order to detect early recurrences, which should be treated, for the most part, by bloodless methods; but without the cooperation of the general practitioners such supervision would be impossible.

TURKEY

(From Our Regular Correspondent)

Ankara, Oct. 21, 1931.

Fourth National Medical Congress

The fourth biennial national medical congress recently convened in Ankara and was attended by more than 400 physicians from all over the country. Following the opening address, in which Ismet Pasha, prime minister, referred to the reports on nutrition as important subjects for discussion, Prof. Dr. Refik, minister of health and social assistance, who presided, addressed the congress. Prof. Dr. Server Kamil of the medical faculty of the department of hygiene reported on nutrition in cities, and Dr. Zeki Nassir on investigations into the question of nutrition in urban and rural communities. Prof. Dr. Kadri Rashit Pasha of the department of pediatrics discussed infant feeding, and Dr. Hamit Osman spoke on nutrition of the preschool child and of children of school age. Dr. Ali Shukri read a paper on the pathogeny, prevention, treatment and incidence of rickets in Turkey and Dr. Murat Ibrahim on the orthopedic and surgical treatment of rickets.

NUTRITION AND DIET IN TURKEY

In the report on nutrition and diet in cities in Turkey, Dr. Server Kamil suggests the establishment of cooperative agencies by means of which a good food supply may be insured at low cost. He recommends also that organizations concerned with the establishment of soup kitchens for the poor broaden their activities, that food inspection in cities be more severe, that food prices be standardized, and the public be educated in matters of food and nutrition and that, in particular, the bread, meat, milk and water supply of cities receive more attention. Owing to the scarcity of fresh milk, the import of all brands of evaporated, powdered and condensed milk is growing from year to year. He stated that pasteurized milk is not even in Istanbul available to the public and that the per capita consumption of milk in that city is 42 Gm. a day.

The report on the investigation into the question of nutrition in urban and rural communities revealed that from 70 to 90 per cent of the diet of the rural population in Turkey is of vegetable origin, and that the chief nourishment of the peasant is "bulgur," whole wheat which has been soaked previous to boiling and is then dried in the sun and coarsely pounded on a hollow stone. This serves for the preparation of soups and pilav. Country bread is made of wheat, rye, millet, barley and corn mixtures, from which, owing to the use of primitive implements, the bran has not been removed. An important fact is that the intake of animal protein of the rural population is most inadequate and that only mutton is used and no pork whatever; the latter is on sale only in large cities, such as Istanbul and Izmir. The peasant as a rule partakes of meat on rare occasions, only such as the Bairam days, the sacrifice offered being a lamb; or on the occasion of the celebration of a wedding party, or in case of an accident that makes it necessary to kill an animal. The demand for eggs in cities causes eggs to be more and more a luxury among the rural population; eggs in villages are as a rule now served only to guests. Butter,

Marriages

Robert Hardin Hackler, Jr., Asheville, N. C., to Miss Harriet Gresham Bates of Richmond, Va., November 20.

Mac M. Dickman, New York, to Miss Dorothy Kaufman of Westmount, Montreal, Que., Canada, October 11.

Albert Welker Collins, Anderson, Ind., to Mrs. Janet McKenzie Dovey of Ottawa, Ill., November 14.

Walter Orthner, Huntingdon, Pa., to Miss Lee Katherine Strohacker of Philadelphia, October 31.

Rufus Preston Sykes, Asheboro, N. C., to Miss Blanche Lentz of Winston-Salem, November 7.

Elam A. Drum to Miss Mattie Elizabeth Walker, both of Richmond, Va., October 24.

Herbert C. Schlosser to Miss Lucille Short, both of Elkhart, Ind., November 14.

Frank Victor Theis to Miss Hazel Ericsson, both of Chicago, December 9.

Joseph Coates, Galax, Va., to Miss Ada Lee Cannaday of Pulaski, October 30.

Deaths

Charles Edward Dowman ⊕ Atlanta, Ga.; Johns Hopkins University School of Medicine, Baltimore, 1905; member of the Southern Surgical Association, Associated Anesthetists of the United States and Canada, American College of Surgeons, Society of Neurological Surgeons, American Neurological Association and the Association for Research in Nervous and Mental Diseases; professor of pathology, Birmingham Medical College, 1911-1913; associate in surgery, University of Alabama, 1913-1915; instructor, associate and assistant professor of surgery, Emory University School of Medicine, Atlanta, 1915-1924; served during the World War; neurologic surgeon to the Scottish Rite Hospital for Crippled Children, Grad Memorial Hospital, Georgia Baptist Hospital, Piedmont Hospital and the Henrietta Egleston Hospital for Children; aged 49; died, November 14.

Walter Aikman Sherwood ⊕ Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1896; member of the American Surgical Association and the American College of Surgeons; served during the World War; aged 55; consulting surgeon to the Methodist Episcopal Hospital, Brooklyn, and the Eastern Long Island Hospital, Greenport; director of the department of surgery, Brooklyn Hospital, where he died, November 21, following an operation for appendicitis.

William Columbus Cox, Everett, Wash.; Jefferson Medical College of Philadelphia, 1885; member and past president of the Washington State Medical Association; member of the American College of Surgeons; member of the state board of medical examiners, 1900-1903; formerly mayor of Everett; honorary president of the staff of the General Hospital of Everett; aged 73; died, September 25.

Albert Ellis Douglas ⊕ Nashville, Tenn.; University of Tennessee Medical Department, Nashville, 1892; member of the American Psychiatric Association; proprietor of a sanatorium bearing his name; formerly superintendent of the Central State Hospital; aged 65; died, November 15, in Oklahoma City, of pneumonia following an operation.

Ulysses Grant Souder ⊕ Auburn, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; aged 65; medical superintendent of the Dr. Bonnell M. Souder Hospital, where he died, November 24, of Vincent's angina, pneumonia and acute lymphatic leukemia.

Summerfield J. Miller ⊕ Madera, Pa.; Medical Department of the University of the City of New York, 1886; state senator, 1914-1922; formerly bank president; aged 72; died, November 10, in the Mercy Hospital, Altoona following an operation for hypertrophy of the prostate and myocarditis.

Herbert Thomas Penny, Cliftondale, Mass.; Central College of Physicians and Surgeons, Indianapolis, 1889; Columbian University Medical Department, Washington, D. C., 1896; member of the Massachusetts Medical Society; aged 68; died, November 19, of coronary occlusion and arteriosclerosis.

William Judson Lamson ⊕ Summit, N. J.; Columbia University College of Physicians and Surgeons, New York, 1896; medical superintendent of the schools in Summit; aged 60; on the staff of the Overlook Hospital, where he died, November 28, of perforated ulcer of the duodenum.

Max Beegel, New York; Columbia University College of Physicians and Surgeons, New York, 1908; member of the Medical Society of the State of New York; on the staffs of the Jewish Memorial Hospital and the Gouverneur Hospital; aged 45; died, November 24.

William Lee Samuels ⊕ Reno, Nev.; University of Louisville (Ky.) School of Medicine, 1897; past president and secretary of the Nevada State Medical Association; on the staff of St. Mary's Hospital; aged 57; died, November 1, of acute yellow atrophy of the liver.

Benjamin Richard White, Rochester, N. Y.; New York Homeopathic Medical College and Hospital, 1899; member of the Medical Society of the State of New York; on the staff of the Genesee Hospital; aged 55; died, November 13, of pneumonia.

Samuel P. Sesmer, Louisville, Ky.; Imperial Jurjev University, Russia, 1894; member of the Kentucky State Medical Association; aged 62; died, November 9, in the City Hospital, of chronic nephritis, uremia, bronchopneumonia and arteriosclerosis.

Ulysses Grant Poland ⊕ Muncie, Ind.; Medical College of Indiana, Indianapolis, 1895; formerly city health officer and county coroner; on the staff of the Ball Memorial Hospital; aged 66; was found dead in bed, November 11, of heart disease.

Claude Addison Tallman, Maumee, Ohio; Northwestern University Medical School, Chicago, 1900; served during the World War; aged 53; died, November 21, in the Flower Hospital, Toledo, of injuries received in an automobile accident.

Geoffrey Joseph Fleming ⊕ Ontario, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; member of the American College of Surgeons; aged 58; died, October 9, of pneumonia.

Eddie De Baun Thixtun, Gosport, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1898; member of the Indiana State Medical Association; aged 63; died, November 21, in the Methodist Episcopal Hospital, Indianapolis.

John F. Shoemaker, St. Louis; Medico-Chirurgical College of Philadelphia, 1893; member of the Missouri State Medical Association, and the American Ophthalmological Society; aged 63; died, November 21, of cerebral hemorrhage.

Robert Woodworth Bell, Jr., Walla Walla, Wash.; Albany (N. Y.) Medical College, 1892; member of the Washington State Medical Association; connected with the U. S. Veterans' Bureau; aged 61; died, November 13.

James Ellis Brayshaw, Wilmington, Del.; Jefferson Medical College of Philadelphia, 1920; member and formerly secretary of the Medical Society of Delaware; aged 34; died, November 18, in the Homeopathic Hospital.

Claude Bertrand Cole ⊕ Toledo, Ohio; Long Island College Hospital, Brooklyn, 1889; University of Pennsylvania School of Medicine, Philadelphia, 1893; aged 65; was found dead, November 22, of cerebral hemorrhage.

Samuel W. Latham, Eldorado, Ill.; St. Louis College of Physicians and Surgeons, 1901; formerly mayor of Eldorado and state senator; aged 53; died, November 1, of pneumonia, as the result of an injury received in a fall.

Charles W. Felix, Martwick, Ky.; University of Louisville School of Medicine, 1890; member of the Kentucky State Medical Association; died, November 18, in the Methodist Episcopal Deaconess Hospital, Louisville.

George Blythe Morris ⊕ Goldsboro, N. C.; University of Maryland School of Medicine, Baltimore, 1910; aged 47; on the staff of the State Hospital at Goldsboro, where he died, November 15, of pulmonary tuberculosis.

Edwin Joseph Reeves, Princeton, N. J.; Tulane University of Louisiana Medical Department, New Orleans, 1893; member of the American College of Surgeons; aged 62; died, November 22, of endocarditis and arthritis.

Carlos M. White ⊕ Visalia, Calif.; Rush Medical College, Chicago, 1901; past president of the Tulare County Medical Society; on the staff of the Kaweah Hospital; aged 59; died, in November, of arteriosclerosis.

John Richard Williams, Carrollton, Ohio; Bellevue Hospital Medical College, New York, 1881; formerly county coroner and member of the board of education; aged 73; died, November 23, of heart disease.

Frederick Barrett, Gilbert, Minn.; Rush Medical College, Chicago, 1897; served during the World War; for seventeen years mayor of Gilbert; aged 56; was found dead in bed, November 4, of heart disease.

Bureau of Investigation

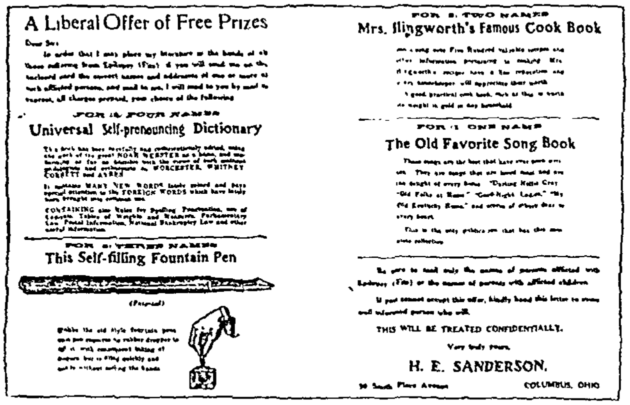
THE CONVERSE TREATMENT

A Columbus, Ohio, Concern That Sells an Alleged Epilepsy Cure

The Converse Company, which on its letterheads is described as "The Converse Treatment Company," operates from 30 Smith Place Avenue, Columbus, Ohio. The head of the concern is said to be one Herbert E. Sanderson who, if reports are to be believed, has been in the "patent medicine" business for about fifty years. Connected with Sanderson (according to the company's stationery) are Frank J. Dawson and Donald W. Dawson, with L. P. Jackson, M.D., as "Medical Referee."

Dr. Louis P. Jackson of Columbus, who has practiced at Delphoss and Van Wert, Ohio, was, according to the records, born in 1867 and holds a diploma from the Starling Medical College of Columbus for 1898. Dr. Jackson is not a member of his local medical society nor of the American Medical Association.

The Converse Treatment has been discussed in The Journal at different times, but the large number of inquiries received by the Bureau of Investigation from both laymen and physicians makes it desirable to bring again to the attention of the profession and the public the facts regarding this mail-order exploitation of epileptics.



A Liberal Offer of Free Prizes

FOR 4 FOUR NAMES

Universal Self-pronouncing Dictionary

This Self-filling Fountain Pen

FOR 2 TWO NAMES

Mrs. Illingworth's Famous Cook Book

FOR 1 ONE NAME

The Old Favorite Song Book

THIS WILL BE TREATED CONFIDENTIALLY.

Very truly yours,

H. E. SANDERSON.

COLUMBUS, OHIO

Photographic reproduction (greatly reduced) of a two-page leaflet sent out by Sanderson of the Converse concern to officials of villages and small towns in an effort to obtain "sucker lists" of epileptics. The "mayor," "president of the city council," or "justice of the peace" to whom the leaflet is sent, is offered trivial bribes for the names of sufferers from epilepsy.

In the days before the passage of the Food and Drugs Act, the Converse Treatment was known as the "Converse Cure," and was described as "The only positive cure known, adopted and recommended by the leading physicians of the country." This statement, being one hundred per cent false, is no longer made by the company, although the implications in the 1931 advertising are almost as false and misleading. In the early days, the Converse nostrum was put out from Mount Vernon, Ohio, by a Mrs. Converse, who was said to have "discovered" the "cure." Although the company has for years claimed — and still claims — that its nostrum has been used by hospitals, sanitariums and physicians, no names or addresses are given to make a check-up on such claims possible.

Since the concern has been under the control of Sanderson, "sucker lists" of epileptics have for many years been obtained by sending broadcast to officials in rural communities a printed circular offering a small dictionary, a fountain pen, a cook book or a song book, free to those who will send a given number of names of epilepsy victims.

Of course, no information is given by the Converse concern regarding the composition of its product. In a booklet sent out at the present time, the public is told:

> "The Converse Treatment is prepared of the purest and most carefully selected herbs and medicines in its component parts, and with scrupulous exactness. Its distinguishing characteristic is the employment of a certain herb. This herb is gathered at a distance for the Converse Company a particular season of the year and prepared for use in its laborat The Converse Treatment avoids entirely the powerful drugs known Opiates, so often given for this trouble and is free from Alcohol, M phine, Opium, Cocaine, Chloral, Heroin, Eucaine, Chloroform, Canna Indica, Acetanilid, or any of their derivatives."

The implication plainly is that the Converse nostrum is ess tially herbs. Listing drugs that a "patent medicine" does contain is an old trick in the business.

In the same booklet from which the quotation given ab is taken, it is stated that the Converse Treatment has ne been advertised in newspapers or magazines, but that the dema has "come entirely from results attained." The facts are, course, the demand has actually come from those victims epilepsy who have received the plausible and misleading "liter ture" of the Converse Company and whose names have be given the concern by those who are willing to furnish the co tact at the price of a fountain pen or cook book.

As long ago as 1912, the Converse Treatment was analyz by the late Senator E. F. Ladd, when he was the aggressi Pure Food Commissioner of North Dakota. Professor Lad report showed that the essential drugs in the Converse Tre ment were the bromides. In 1915, the A. M. A. Chemic Laboratory, at the request of the Bureau of Investigation, ma a thorough analysis of the Converse Treatment and the findin confirmed the earlier analysis of the North Dakota chemis The A. M. A. Chemical Laboratory reported that from i analysis, it was evident that those who took the Converse Trea ment in the dosage recommended obtained bromides correspon ing to 58 grains of potassium bromide daily.

The Converse Treatment, quite obviously, has all the limit tions and dangers of a bromide mixture.

TRIPLE L MEDICINE COMPANY

The Postal Authorities Declare Thomas N. Walker's "Syphilis Cure" a Fraud

In this department of The Journal for September 19, th year, there was published a brief story on the issuance of fraud order against the West Medicine Company and Wester Medical Clinic, exploited in Colorado. It was brought out i this item that the West Medicine Company was established i 1893 by one Charles West, the father of Amos C. West, wh at the time of the issuance of the fraud order, was the owner. Dr. George D. Hoschouer had also operated the business prio to the acquisition of the concern by Amos C. West. Hoschoue conducted the concern under the name of the Western Medica Clinic, but when Amos West took it over, the name was change back to the West Medicine Comany. The concern was sellin through the mails two preparations, known, respectively, a "909" and "Brigham Young Tablets," the former an allege cure for syphilis and the latter an equally alleged cure for "los manhood." Amos C. West, it was brought out by the federa authorities, had no medical training, but was, in fact, a chiropractor and a real-estate operator. On August 24, this year the Postmaster General debarred the West Medicine Compan and the Western Medical Clinic from the United States mails

Now, the postal authorities have issued another fraud orde directed against the Triple L Medicine Company and on Thomas N. Walker of San Francisco, Calif. Walker, it seems is a linotype operator and has conducted, as a side-line, a piec of mail-order quackery known as the Triple L Medicine Company, operating the business from his residence. The man has no medical or pharmaceutical training. "Triple L," as Walker calls his nostrum, is the same product that was known as 909, sold by the West Medicine Company of Denver. When the Post Office authorities began investigating the Triple L Medicine Company, Walker admitted that his Triple L was the old 909 "cure" for syphilis. Chemical analysis by the federal authorities of this alleged cure showed it to contain 3½ grains of gold and sodium chloride to the ounce. This combination, of course, has no value whatever in the treatment of syphilis, and in fact, if taken over a long period, may produce very serious effects on the user. As a result of the investigation, the Hon. Horace J. Donnelly, Solicitor for the Post Office Department, recommended to the Postmaster General that a fraud annually. As has been well said, excessive smoke is not a necessity but a luxury of laziness and indifference.

It is not only for the purpose of impressing on the public mind the menace to health of impure air and dirty streets that an exhibit will be held at the New York Academy of Medicine, 2 East One Hundred and Third Street, New York, under the joint auspices of the Academy Committee on Public Health Relations and the Committee of Twenty on Outdoor Cleanliness. It is being arranged primarily as an educational measure to stress the possibility of preventing this nuisance and health hazard. The exhibit, which will be open to the public, will begin Jan. 12, 1932, and continue for eight days. It will consist not only of graphs, charts, photographs, and various scientific instruments of precision used in measuring contamination, but principally of models of modern street cleaning apparatus, stoking devices, ventilating machines, and moving pictures depicting modern methods. In this endeavor the cooperation of the city, state and federal authorities is being enlisted, as well as that of scientific organizations and of the manufacturers of proper equipment.

Inquiries may be addressed to the undersigned as executive secretary of the Public Health Relations Committee, 2 East One Hundred and Third Street, New York.

E. H. L. Corwin, New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

USE OF POTENT LIVER MATERIAL IN PERNICIOUS ANEMIA

To the Editor:—I have a patient who has pernicious anemia and has been on the liver diet for four years, part of the time taking the extract. At present his red blood cell count is falling, despite the fact that he takes three vials of the extract a day. Cord changes are also developing rapidly. At present there is an extreme degree of irritability of the bladder and frequency of urination. At times the patient has tonic spasms of the legs. Please advise me as to whether anything can be done for the bladder or for the contractions in the legs. Please omit name.

M.D., Kansas.

Answer.—The treatment of pernicious anemia is not merely with liver or a potent substitute but with enough liver or potent substitute for the given individual case. A falling red blood cell count is a clear-cut indication for the patient to take much more potent material. It is naturally important to know that the patient is receiving a potent product. Progressive cord changes are also a clear-cut indication for the patient to receive much more potent material, no matter whether the red blood cells are present in normal or in decreased numbers.

Exactly how much potent material should be considered optimal for this case cannot be foretold. It would be wise to give the patient, by mouth, potent liver extract derived from not less than 1,000 Gm. of liver a day. The patient may have difficulty in absorbing or utilizing the product when given by the intestinal route, and if so an extract given parenterally may be of great advantage. Economically, it would be of advantage to administer a potent liver extract intramuscularly. Likewise, so that there would be no delay in having ample potent material enter the patient's body, it would be wise to give him daily intramuscular injections of at least 2 cc. (each cubic centimeter representing extract derived from 5 Gm. of liver) of a potent liver extract properly prepared for use in this manner.

It is important to remember that infections, such as pyelitis, can inhibit the action of the active principle effective in pernicious anemia, and it should be ascertained whether the patient has any infectious condition of the genito-urinary tract, and if so it should be treated appropriately. Symptoms referable to the bladder are prone to improve under treatment with an adequate amount of potent material.

Physical therapy frequently aids to decrease such symptoms as the patient has had referable to his legs. The most important thing to do, however, is to treat the patient with enough potent terial.

The following liver extracts for oral administration have been accepted for New and Nonofficial Remedies: Liver Extract No. 343 (Lilly), Concentrated Liver Extract-Armour, Liver Extract-Fairchild, Liver Extract-Lederle, Marine Liver Extract-White. Solution Liver Extract Parenteral-Lederle, proposed for intramuscular or intravenous injection, has also been accepted by the Council on Pharmacy and Chemistry.

TREATMENT OF THROMBOPHLEBITIS

To the Editor:—In view of repeated reports that ambulatory treatment of phlebitis complicating injection of the varicose veins is the method of choice, is there reason to believe that the time-honored treatment of infectious phlebitis by rest should be changed? Or, worded differently, do absolute rest and immobilization form the proper method of treatment for the average case of thrombophlebitis (not associated with varicose veins)? Please omit name.

M.D., Virginia.

Answer.—Thrombophlebitis in nonvaricose veins must be grouped into a deep and a superficial variety. Superficial thrombophlebitis, if it occurs in small patches and without elevation of temperature, is best treated with adequate elastic support and no immobilization. If it is of the ascending type, accompanied by a rise in temperature and a high white blood cell count, a high ligation of the saphenous vein results in an efficient barrier to the thrombosis. The patients are kept in bed only for a few days, until the pulse rate becomes normal, and may then get up, with adequate support.

The treatment of deep thrombophlebitis is one of the most neglected questions of the day. The object of rational treatment should be (1) to minimize the danger of embolism and (2) to combat from the start the persistence of edema, which will lead to irreversible changes in the tissues. There is a paradoxical relationship between the extent of the clot in the deep vein and the danger of embolism. The more extensive the deep clot is and the more pronounced the "milk leg," the smaller the percentage of lung infarcts and fatal pulmonary emboli seems to be, whereas the small, silent clots break loose more often and end fatally in patients who have no, or barely any, sign of venous obstruction. The rule of keeping these patients in bed for from four to six weeks is entirely arbitrary. A better, more rational plan is to watch the pulse and the white blood cell count and to permit some muscular action about ten days after the pulse has become normal. Any elevation of the pulse would necessitate further immobilization. The leg should be strapped from the toes to the thigh with an elastic bandage, which not only influences the edema but diminishes sudden rises of venous pressure during movements. Other methods of diminishing the acute edema are in the experimental stage.

An absolute immobilization of the patient is not necessary and, in fact, is not even possible. The patient, with leg splinted and lying flat on the back, does more straining with every bowel movement than a slight turning on the side or sitting up would produce. When one reads the interesting statistics of Kappis (*Deutsche Ztschr. f. Chir.* **223:**317, 1930), who reports 100 cases of deep thrombophlebitis treated merely by strapping, but in an ambulatory manner, with a resulting percentage of infarcts and fatal emboli which does not exceed the ratio in an immobilized group of patients, one must seriously wonder whether immobilization of deep phlebitis really prevents embolism at all. Until the question is settled on the basis of adequately controlled statistics, it seems safer to keep patients in bed without bathroom privileges, but not under strict immobilization. The loosening of the thrombus must be regarded more in the light of a chemical process, in which the present crude mechanical measures are yet utterly helpless.

POSSIBLE POISONING FROM LACQUER

To the Editor:—A college student, who came to my office complaining of weakness, nervousness and loss of weight, stated that he worked with lacquer for about six weeks this summer. The question arises whether this may have some influence on his condition.

Ara D. Sharp, M.D., Albion, Mich.

Answer.—Unfortunately, the term "lacquer" provides little information on which any opinion may be formed, in reply to this query. No less than thirty volatile substances may enter into lacquers, many of which are toxic. The number includes methanol, butanol, amyl alcohol, glycols, acetone, butyl acetate, amyl acetate, ethyl acetate, benzene, toluene, xylene, naphtha and lactates.

Lacquers may contain plasticizers of harmful nature, such as tricresyl phosphate, which is believed to be the agent responsible for "jake paralyses." Some lacquers are pigmented and thus open up the possibilities of harm from such agents as arsenic

Bureau of Venereal Diseases, U. S. Public Health Service. No published statement with regard to the percentage development of positive blood reactions in originally seronegative primary cases under the influence of treatment seems to be available. It is well known, however, that this shift to positive, as a form of progression, does occur, and precautions should be taken to recognize the situation early in the course of the treatment by taking several blood tests at intervals of a week after the initial negative reaction, on the basis of which treatment was begun. Patients in whom such positive reactions subsequently appear are to be regarded as having fully developed infections, and should not be treated by an abortive or short-cut technic.

2. The general in vitro antiseptic properties of the arsphenamines are known, including their spirillicidal action, to a certain extent. These drugs in solution are not sufficiently powerful bactericides to justify any reliance on their self sterilizing properties. In the light of experience with modern technic, the use of tap water for arsphenamine injection without previous sterilization can only be regarded as reprehensible.

ALBUMINURIA AND INSURANCE

To the Editor:—A few days ago I had occasion to examine a school boy in apparently perfect health and found a small trace of albumin. The boy was examined by his family physician, who did not confirm my test. However, a few days later I found the same condition present again, and the observation was confirmed by the laboratory. Microscopic analysis showed 4 white blood cells to the high power field, no red cells, no hyaline casts, some shreds and small waxy filaments. What is the condition present and what effect, if any, should it have on his insurability? Please omit name.

M.D., New York.

Answer.—The data submitted are insufficient to afford any definite deductions. Evidently the albuminuria is not constant. It would therefore be advisable to determine whether it is postural or orthostatic by examining the urine passed in the morning after a night's rest. The absence of albumin at this time and its appearance after the patient has been active would suggest this condition. Nephritis can hardly be considered here unless the child has recently had an acute infectious disease with a renal involvement. Nephrosis is associated with large quantities of albumin, waxy casts and doubly refractive lipoid bodies in the urine, while glomerular nephritis is associated with small amounts of albumin, red blood corpuscles and hyaline casts. The presence of a few white blood cells in the urine, if constant, would suggest the possibility of some irritative process in the genito-urinary tract. Repeated examinations of the urine and a careful physical examination should be made and a temperature record kept, as the possibility of a chronic renal lesion or even a calculus without any subjective symptoms must be considered.

Formerly the tendency for insurance companies has been to refuse insurance to applicants with albuminuria. Several companies realize that transient or orthostatic albuminuria need not necessarily interfere with life and health and are now insuring the applicant with little or no rating up of the premium.

ALLERGIC SWELLINGS

To the Editor.—I have a patient, a woman, aged 39, married, who has had swelling, stiffness and some pain in the metacarpophalangeal and first interphalangeal joints of both hands for the past seven or eight years. These symptoms are most marked early in the morning and tend to disappear during the day. They are much more pronounced for several days preceding her menstrual periods and during the time of menstruation. The condition is not severe enough to be disabling but is annoying. The cervix was amputated ten years ago. She had a miscarriage nine years ago. The menses are scanty (two days) with considerable pain on the first day. The general physical condition is essentially normal. There have been no other pregnancies. Could there be any relation between the menses and the rheumatoid condition? Please discuss this case as to etiology and treatment. Please omit name.

M.D., Alabama.

Answer.—From the description of the transitory character of the swelling, tending to disappear during the day, the trouble is probably not inflammatory, as would have been the case if it were a rheumatoid arthritis. Furthermore, a chronic arthritis of the type described would almost certainly have led to some permanent deformity and restricted movement of the joint. The history indicates, rather, an angioneurotic edema. This receives further support from the greater intensity of the symptoms at the menstrual period, when the average woman is more nervous. It would be interesting to know whether the patient or her immediate relatives suffered from any allergic disease, as urticaria, hay fever, asthma or migraine.

In regard to treatment, it might be wise to make some food skin tests and then withdraw from the diet those foods to which the patient is sensitive. This treatment is based on the assumption that the trouble is allergic.

LEVULOSE

To the Editor:—Referring to the editorial in The Journal, October 24, page 1230, entitled, "The Absorption of Levulose," improved processes of production of this sugar are mentioned. Could you send to me references to recent articles describing these new processes?

Veader Leonard, M.D., Baltimore.

Answer.—A semicommercial plant capable of producing 50 pounds (22.7 Kg.) of levulose a day has been in operation at Iowa State College, Ames, Iowa, during the past year, using the Jerusalem artichoke as the raw material because of its many good features from an agricultural point of view. By drying the artichokes, many advantages are obtained, including the operation of the plant throughout the year.

A continuous precipitation process has been developed, yielding granular lime levulate, which may be easily filtered and washed. The preparation of crystalline levulose in good yields has been accomplished at ordinary temperatures (15 C.) without the use of refrigeration.

The history of levulose up to the year 1923 has been summarized by Harding (*Sugar* **25**:406, 636, 1923). Later investigations have been published by Jackson, Silsbee and Proffitt (*Indust. & Engin. Chem.* **16**:1250, 1924; Scientific Paper 519, 614, Bureau of Standards, 1926). The latest review including the entire literature of the subject will be found in a paper by McGlumphy and Eichinger (*Indust. & Engin. Chem.* **23**:1202 [Nov.] 1931).

NEED OF PERSISTENCE IN TREATING CONGENITAL SYPHILIS

To the Editor:—A boy, aged 15 years, unusually strong and well built and apparently in perfect health was accidentally found a year ago to have a four plus Wassermann reaction. There are none of the usual signs of hereditary syphilis nor is there any history of acquired syphilis. No family history is obtainable, as the boy was adopted when a baby and nothing is known about his parents. I have known him since he was 4 years of age and he has had no sickness during that time except an attack of measles. For the past year he has received intensive antisyphilitic treatment by a competent physician, but he still has a positive Wassermann reaction. Would you advise further treatment? Please omit name.

M.D., California.

Answer.—Treatment should be continued as intensively and constantly as the health of the patient permits. Congenital syphilis yields slowly in most cases. A careful examination of the nervous system and the spinal fluid is indicated.

USE OF VIOSTEROL DURING PREGNANCY

To the Editor:—Please advise me whether administration of irradiated ergosterol to pregnant women could cause a premature calcification of the fetal head, resulting in dystocia, with possibly damage later to the child.

Hallie Earle, M.D., Waco, Texas.

Answer.—There is no danger to mother or child from therapeutic doses of viosterol (irradiated ergosterol) given during pregnancy. In fact, such medication probably would be of advantage, owing to the excessive drain of calcium and phosphorus that takes place during this period. This medication is especially indicated in cases in which the intake of calcium compounds has been insufficient.

NONSURGICAL TREATMENT OF RECTAL PROLAPSE

To the Editor:—An elderly woman is suffering from a complete rectal prolapse of several years' duration. She refuses to have an operation. Can you suggest any measures or devices that would help to keep the prolapsed rectum in its normal position? Please omit name.

M.D., Wisconsin.

Answer.—There is no mechanical device known that will keep in place the prolapse of the rectum appearing in an old person. Careful attention to diet to give regular bowel movements; above all, avoidance of cathartics and, lastly, pressure on the prolapse with warm moist dressings after bowel movements, followed by light compression obtained by a T binder over the area, are the most important palliative measures.

HEART DISEASE FOLLOWING TRAUMA

To the Editor:—The answer in Queries and Minor Notes (The Journal, October 24, p. 1245) on "Heart Disease Following Blow Over Sternum" leads me to offer an additional reference; namely, Tuohy, E. L., and Boman, P. G.: Trauma to Viscera from Nonpenetrating External Injuries, with Special Reference to the Heart, *Ann. Int. Med.* **4**:1373 (May) 1931. These authors discuss three cases of auricular fibrillation following such trauma. One case was personally observed and the others were reported in two separate papers in the literature. This article is well worth reading for information on this little known subject.

William D. Reid, M.D., Boston.

Malaria Investigations in Some Parts of the Transvaal and Zululand. By N. H. Swellengrebel, Professor of Parasitology, University of Amsterdam, Holland, S. Annecke, M.A., M.B., B.S., Medical Inspector (Malarial), Public Health Department, Union of South Africa, and B. De Meillon, M.Sc., F.E.S., Acting Entomologist, South African Institute for Medical Research, Johannesburg. Publications of the South African Institute for Medical Research. Volume IV, No. 27. Edited by the Director. Paper. Pp. 245-274, with 18 illustrations. Johannesburg: South African Institute for Medical Research, 1931.

The only mosquitoes found to be concerned in malaria transmission were Anopheles funestus, Anopheles costalis and Anopheles pretoriensis. The natural index of infection in each case was: funestus, 15.9 per cent (340 examined); costalis, 15.6 per cent (205 examined), and pretoriensis, 1.7 per cent (114 examined). The conditions were found to be favorable to species control of the incriminated anophelines. A. funestus breeds in streams with grass-covered banks, especially where the current is not strong; it prefers water that is clear and fresh. A. costalis is a puddle breeder, being found in the most temporary mud puddles which are lacking in vegetation and without shade. A. pretoriensis is thought to play little part in natural transmission, probably because of its lack of contact with man. Evidence is presented which indicates that human gamete carriers (of estivo-autumnal malaria) with infections as low as 1 gamete to 1,500 leukocytes may infect anophelines. The native population in highly malarious areas shows a resistance to the disease. This is demonstrated by the lack of obvious signs of suffering in young children with heavy infection; by an acquired immunity later on, as shown by reduction of the parasite rate and a high spleen rate; and among adults by an acquired tolerance, as shown by a lessened spleen rate and a continued state of immunity, so that the parasites are kept low in numbers.

Gynecology and Urology for Nurses. By Samuel S. Rosenfeld, M.D. F.A.C.S., Adjunct Obstetrician and Gynecologist, Lebanon Hospital, New York City. Cloth. Price, $2. Pp. 230, with 97 illustrations. New York: William Wood & Company, 1931.

Because of the close relationship between gynecology and urology, the author presents a brief picture of these subjects. He falls short of making it of great value by devoting too little space to the subject of the nurse's responsibility in these conditions, and actual nursing care. The final chapter, written on postoperative care, appears to be a set of rules for hospital routine such as may be seen posted in the house staff room in some institutions. Lacking in this chapter is any discussion of postoperative complications and instruction to the nurse on how to recognize and evaluate untoward symptoms and signs. The book could be made more useful by revision in subsequent editions.

Atlas der Röntgenstereoskopie. Von Dr. Max Cohn, dirigierender Arzt der Röntgenabteilung am Städt. Krankenhaus im Friedrichshain-Berlin. 1. Serie mit 20 Filmdianegativen und einem Betrachtungsapparat. Cloth. Price, 22 marks. Pp. 26. Leipzig. Georg Thieme, 1931.

This collection includes a text by Dr. Max Cohn, a folding stereoscope and twenty stereoscopic negatives of roentgen appearances. Such conditions as tuberculosis of the kidney, appendicitis, gallstones, carcinoma, ulcers, echinococcosis, fractures, tumors of the brain, and various types of cysts are illustrated.

Exploration radiologique de l'appareil respiratoire. Par Émile Sergent, professeur à la Faculté de médecine de Paris, Francis Bordet et Henri Durand, chef du laboratoire de la clinique de la Charité. Avec la collaboration technique de J. Couvreux, chef du laboratoire de radiologie de la clinique de la Charité. Fascicule I et II. Cloth. Price, 350 francs per set. Pp. 465, with 639 illustrations. Paris: Masson & Cie, 1931.

This work is printed on excellent paper to bring out the roentgenographic illustrations to the best advantage. The scheme has been to publish the diagnosis and caption in close proximity to the illustration, to facilitate the intelligent study of the condition. The work is divided into three general parts: the first sets forth as briefly as possible the technical and roentgenologic exploration of the respiratory system, followed by general remarks on the value and interpretation of the results contributed to the clinical study by roentgenology. The second part is dedicated to the study of the basic principles, beginning with descriptions of the roentgenologic images of the normal respiratory tract. In the third part of the work there are described in order the roentgenologic appearances of the various respiratory disorders, classified under the following heads: thoracic cage, diaphragm, mediastinum, trachea and bronchi, pleura and the lungs. The text is adequate and not too brief. The captions contain the essential facts relating to each of the illustrations. The use of iodized oil in bronchiectasis is also described in detail, and certain other lesions are carefully described. This monumental work contains a veritable mine of information relating to the roentgenologic investigation of the respiratory tract.

Diseases of the Skin. By Richard L. Sutton, M.D., Sc.D., LL.D., Professor of Diseases of the Skin, University of Kansas School of Medicine. Eighth edition. Cloth. Price, $12. Pp. 1352, with 1301 illustrations. St. Louis: C. V. Mosby Company, 1931.

The first edition of Dr. Sutton's textbook appeared in 1916. The present edition includes a rearrangement of the illustrations, the use of a lighter and finer grade of paper, and much new material. The book is modern, and particularly safe as a guide for the general practitioner, since it does not offer to him technics involving roentgen or similar procedures suitable only for use by the specialist.

Die physikalische Seite des Blutgerinnungsproblems und ihre praktische Bedeutung. Von Dr. med. Heinrich Lampert, Privatdozent an der Universität Frankfurt a. M. Paper. Price, 10.50 marks. Pp. 127, with 45 illustrations. Leipzig: Georg Thieme, 1931.

This monograph presents results of studies of the physics of blood clotting. The function of surface forces in clotting receives especial attention. For blood transfusion, correct counting of thrombocytes and other purposes, it is desirable to use containers—syringes and vessels—the surfaces of which delay clotting. The author has made an effort to find substances that are more practical than paraffined glass for this purpose. Certain formaldehyde-phenol products delay coagulation, but the most promising substitute for paraffined glass appears to be amber, which, besides presenting surfaces which inhibit clotting for a time, also has the highly desirable quality of transparency. The author believes that his results will lead not only to valuable practical improvements in the handling of fresh blood but also to new and fruitful methods of investigating the blood itself.

Quantitative Estimation of Vitamin D by Radiography. By R. B. Bourdillon, H. M. Bruce, C. Fischmann and T. A. Webster. Medical Research Council, Special Report Series, No. 158. Paper. Price, 1s. Pp. 48, with illustrations. London: His Majesty's Stationery Office, 1931.

This is a detailed account of a method for the quantitative estimation of vitamin D, based on the roentgenographic examination of the healing of rickets in rats, for which an arbitrary scale of twelve different stages of healing is used. The curative effects of graded doses of the substance under examination are compared with the effects produced in a comparable series of animals by doses of a standard preparation, both being measured in terms of the roentgenographic scale described in this paper. Some of the factors taken account of in using this technic are breeding stock, age, weight, diet and caging of the young rats used for the test, and x-ray plant operated under specified conditions. A representative healing scale with detailed description is presented. Twelve roentgenograms comprise the series used in the scale, each picture being distinct enough to be distinguished from the others and to represent a definite state in the calcification process. The scale has been calibrated by tests on a large number of rats and found to be approximately logarithmic in nature. The chief sources of error in this technic prove to be variations in response of litter mates to vitamin, and mistaken judgment as to the degree of healing, the latter being responsible for nearly a third of the total error.

Bedside Interpretation of Laboratory Findings. By Michael G. Wohl, M.D., Associate Professor of Experimental Medicine, Temple University Medical School. With an introduction by Joseph McFarland, M.D., Sc.D., Professor of Pathology, University of Pennsylvania. Cloth. Price, $6. Pp. 321, with 133 illustrations. St. Louis: C. V. Mosby Company, 1931.

This book is noteworthy for its simplicity. It adds a few clinical interpretations of laboratory observations to those found in the ordinary textbooks on laboratory and clinical methods of diagnosis. In reality, the book is merely a summary of the work found in many textbooks and correlated for the purpose of clinical medicine and bedside teaching.

stupefies him, or if it has any effect except to prevent withdrawal pains. The medical writers seem to be agreed that whenever a morphine addict is not under the influence of at least his usual dose he is in a state which ranges from extreme discomfort to intense pain. In other words, morphine addicts should be mentally at their best when under the influence of their customary doses, and at their worst when in need of their drugs of addiction.

Evidence of morphinism on the part of a witness, if supported by competent evidence to the effect that the memory of that particular addict has in fact been impaired or by competent opinion evidence to the effect that the addiction of the witness has been for a sufficient period, or that amounts used have been great enough probably to impair the memory of the addict, clearly may be admissible. But, Judge McDowell concluded, evidence of drug addiction standing alone should not be admitted on the ground that it may have impaired the addict's memory. The addiction may have had such an effect, and it may not. There is medical authority for the assertion that long-continued addiction or a very large consumption of a narcotic drug does usually impair the memory. But not all drug addicts have been such for a long period, and some do not use and never have used large quantities of the drug of their addiction. Many medical works make no mention of impairment of memory as a result of narcotism. Evidence of addiction would, therefore, in many cases be admissible.

Nevertheless, in *Wilson v. United States*, 232 U. S. 563, 34 S. Ct. 347, 58 L. Ed. 728 (1913), a defendant in a criminal case, on cross-examination, admitted that she was addicted to the use of morphine and stated that she had taken her last dose of the drug at 10 o'clock that morning. The Supreme Court held that evidence was admissible. But whether or not that decision makes admissible further questions from the cross-examiner, to show that the witness is a morphine addict, is not clear. Judge McDowell thought that that was not the necessary effect of the decision. Owing to the popular belief that drug addicts are unveracious, knowledge by the jury of the bald fact of addiction would do an illegitimate injury to the credit of the witness; illegitimate, because the basis of the ruling in the case just cited was not a probability of mendacity but a probability of some degree of still continuing temporary stupefaction of the mental powers of the witness, due to the recent dose of morphine.

In affirming the judgment of the district court in favor of the plaintiff, the Circuit Court of Appeals, Fourth Circuit, said:

> As she (the witness) had testified that her condition was due to her injuries and the evidence tended to contradict her, it was competent for that purpose. But it is insisted that it should have been received for all purposes, principally for the purpose of showing she was a dope addict, and that dope addicts are incredible. Without entering upon a discussion of the tendency, if any, of the excessive use of morphine to undermine the moral attributes of the user, it suffices to say there is no sufficient evidence in the record to show that Mrs. Huddle had made such excessive use of it, and the court committed no error in restricting the evidence.

Workmen's Compensation: Hernia or Hydrocele.—About ten months after an alleged blow on the abdomen in the course of his employment, the claimant filed his application for compensation under the workmen's compensation act, asserting that the blow had caused a hernia. An order of the workmen's compensation board awarding compensation was affirmed by the circuit court, Harlan County, and an appeal was taken to the Court of Appeals of Kentucky. The claimant testified that after the injury he was examined by about thirty physicians, all of whom advised him that he had a hernia, but he was unable to give the name of any physician but one, who himself denied ever having examined the claimant after he was injured. A physician testifying on behalf of the claimant said that the claimant was not able to do manual labor, that his ruptured condition could have been caused by such an accident as the claimant described, that the claimant had a hydrocele near the hernia, and that because the claimant was anemic and had tuberculosis, it was his opinion that the claimant was not a good surgical risk and ought not to undergo a surgical operation. On the other hand, the physician named by the claimant as having examined him testified that he had never seen him nor treated him after the injury, but that his records showed that the claimant was examined before he entered the service of his employer from whom he was now claiming compensation and that at that time he was not ruptured, but had a hydrocele and some tenderness, which would not interfere with his work. Another physician testified that he had examined the claimant after the injury, preparatory to giving evidence, by the use of the x-rays and by physical examination, that there was no evidence of hernia, that he had a hydrocele of long standing which was not due to trauma, and that while his condition might interfere slightly with his work, it could be relieved by a simple operation. The Court of Appeals, however, affirmed the order of the circuit court, Harlan County, which had affirmed the order of the workmen's compensation board, awarding compensation to the claimant because of his alleged hernia arising from an injury in the course of his employment. —*Mary Helen Coal Corporation v. Hooker (Ky.), 35 S. W. (2d) 535.*

Wills: Testimony of Attending Physician Concerning Competence of Testator.—An attending physician may express an opinion concerning the competence of a testator without giving the reason on which his opinion is based. This rule applies with greater force when the witness is the family physician, one who has known and attended the testator over a period of years and has thereby become intimately acquainted with his physical and mental constitution and peculiarities. His testimony, under such conditions, is more than a mere opinion. It is equivalent to knowledge.—*Davidove v. Duvall (Md.), 153 Atl. 417.*

Frontal Sinusitis Attributed to Trauma.—The plaintiff in falling struck her head against a wall. The impact was so severe as to cause swelling and tenderness over her left eye and resulted in pus forming in the sinus above the eye. She was operated on for the sinus trouble. The wound healed quickly, but she was suffering at the time of the trial from conjunctivitis and impaired vision. The Kansas City Court of Appeals, Missouri, held that an instruction that allowed the jury to conclude that the injury was permanent was not erroneous.—*Burnison v. Saunders (Mo.), 35 S. W. (2d) 619.*

Wills: Criteria of Testamentary Capacity.—Neither sickness nor impaired intellect is sufficient, alone, to render a will invalid. If at the time of the execution of the will the testator was capable of recollecting her property and the natural objects of her bounty and their claims on her, and knew the business about which she was engaged and how she wished to dispose of her property, that is sufficient. Moreover, those who would impeach a will on the ground that the decedent was incompetent must clearly prove that incompetence.—*Tabb v. Willis (Va.), 156 S. E. 556.*

Evidence: Medical Witness's Discussion of Facts with Others.—In a personal injury suit, the defendant, over the plaintiff's objection, asked one of the plaintiff's medical witnesses if he had conferred with other physicians in attendance on the plaintiff. Objection was made on the ground that the inquiry sought to elicit an immaterial fact. We believe, said the Supreme Court of Oregon, that the information sought was material; it is always permissible to ask a witness whether he discussed the facts with any other person.—*Stotts v. Wagner (Ore.), 295 P. 497.*

Drunkenness: As Excuse for Delay of Trial.—Intoxication resulting from the recent use of ardent spirits is no excuse for crime and the court of criminal appeals of Texas doubted whether it would be justified in establishing a precedent that one who is drunk may rely on that fact as an excuse for not going to trial on a criminal charge.—*Perry v. State (Texas), 33 S. W. (2d) 1072.*

Society Proceedings

COMING MEETINGS

Mid-South Post-Graduate Medical Association, Memphis, Tenn., February 9-12. Dr. A. F. Cooper, Bank of Commerce Building, Memphis, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

American Journal of Diseases of Children, Chicago

42: 965-1052 (Oct.) 1931—Part II

*Skin Temperatures of Children. F. B. Talbot, Velma Bates, Eleanor Bates and Alice J. Dalrymple, Boston.—p. 965.

Skin Temperatures of Children.—Studies of skin temperatures of children made by Talbot and his co-workers by means of a thermocouple showed the following facts: 1. There is a local variation of the temperature of the skin over different parts of the body, even in normal children, the temperature of the trunk being highest, the face next and the extremities lowest. The temperature of the feet tends to be lower than the temperature of the hands. 2. Surrounding temperature has a definite effect on the temperature of the skin of the body even when the child is clothed. The cooler the room is, the lower the temperature of the skin. 3. There is also a seasonal effect on the temperature of the skin. 4. This investigation showed that humidity within the limits of room temperature and room humidity studied had no effect on the temperature of the skin. 5. There is a rapid loss of heat from the surface of the body on exposure. This affects the face least, the body next and the extremities most. There is a greater variation in the reaction of the extremities to different surrounding temperatures than in other parts of the body. This suggests that the extremities act as safety valves for the conservation or the elimination of heat. 6. During fasting the temperature of the skin, as well as that of the body, becomes reduced. 7. Exercise has a definite effect on the skin temperature. During the first few minutes of exercise the temperature of the skin falls and later rises. This may be of profound physiologic importance and suggests that when exercise is first commenced heat is retained in the body in order to increase the efficiency of the muscles. 8. This work gives further evidence that the heat-regulating apparatus of the premature infant is not developed. The temperature of the skin, as well as that of the body, is affected directly by the surrounding temperature and to a greater degree than it is in normal babies. 9. Studies were made of the effect of fever on subjects with different body temperatures. These were grouped in such a way that the skin temperature for different fevers and different room temperatures are now available and are presented as possible standards of expected skin temperatures for different body and room temperatures. 10. The skin temperature was recorded in a number of cretins with lowered basal metabolism. Some of them were also studied after the metabolism had been elevated by the use of thyroid extract. When heat production was found increased, the temperature of the skin was increased. 11. A variety of pathologic cases were studied without showing any relationship between the temperature of the skin and the type of illness which the patients were suffering.

American J. Obstetrics & Gynecology, St. Louis

22: 501-660 (Oct.) 1931

*Use of Anterior Pituitary Luteinizing Substance in Treatment of Functional Uterine Bleeding. E. Novak and G. B. Hurd, Baltimore.—p. 501.

*Results of Rabbit Ovulation Test in Diagnosis of Pregnancy. K. M. Wilson and G. W. Corner, Rochester, N. Y.—p. 513.

Clinical Importance of Sex Hormones. E. C. Dodds, London, England.—p. 520.

Morphology of Menstrual Blood and Its Diagnostic Value. S. H. Geist, New York.—p. 532.

Reradiations in Radium Therapy of Carcinoma of Cervix Uteri. G. Gray Ward and Lilian K. P. Farrar, New York.—p. 543.

Five to Fifteen Year Follow-Up Study of One Hundred and Ninety-Two Cervical Cancers. F. W. Lynch, San Francisco.—p. 550.

Conclusions from Study of Five-Year Cures in Series of One Hundred and Twenty-One Cases of Carcinoma of Cervix Uteri. H. S. Crossen, St. Louis.—p. 559.

Basal Metabolic Rates in Late Pregnancy and Puerperium. O. H. Schwarz and C. Drabkin, St. Louis.—p. 571.

*Clinical Study of Postoperative Value of Barbituric Acid Hypnotics. Alice F. Maxwell, San Francisco.—p. 579.

Prevention and Repair of Hernia in Low Median-Line Incisions. J. C. Masson, Rochester, Minn.—p. 596.

*Length of Labor. L. A. Calkins, Kansas City, Mo.; J. C. Litzenberg, Minneapolis, and E. D. Plass, Iowa City.—p. 604.

Treatment of Vertex Occipitoposterior Position. A. H. Bill, Cleveland.—p. 615.

Prognosis in Nephritis Complicating Pregnancy. H. J. Stander and C. H. Peckham, Baltimore.—p. 626.

Blood Sugar in Eclampsia. J. M. Laferty, Philadelphia.—p. 637.

Is Salpingitis a Factor in Incidence of Tubal Pregnancy? R. C. van Etten, New York.—p. 645.

Case of Rudimentary Congenital Heart in the New-Born. J. I. Kushner, New York.—p. 647.

Anterior Pituitary Luteinizing Substance in Treatment of Functional Uterine Bleeding.—Novak and Hurd describe the results they obtained in the treatment of fifty-one women with functional uterine hemorrhage by an anterior pituitary luteinizing principle derived from the urine of pregnant women. In forty-four of these the treatment was successful in checking the bleeding, even though some of the patients were treated with preparations of somewhat uncertain luteinizing potency. Most of the failures were in this group. Previous efforts at the organotherapy of this condition have been unsuccessful. Radiotherapy is highly undesirable in young women, so that, because of the frequent intractability of functional hemorrhage, many patients have had to submit to repeated curettage. With strongly luteinizing preparations, it was possible to check functional hemorrhage in twenty-seven of twenty-nine cases. In fourteen of the fifty-one cases the bleeding ceased after a single injection, and in twelve after two injections. A large proportion of these were of the intractable and recurrent type, many of the patients having had from one to four or more curettages. With less potent luteinizing preparations the results were less impressive but, on the whole, satisfactory. The authors' experience with the entire group has convinced them of the value of the treatment in functional hemorrhages, and of its even greater future possibilities.

Rabbit Ovulation Test in Diagnosis of Pregnancy.—Wilson and Corner present results obtained from the urines of 196 women on whom the rabbit ovulation test as suggested by Friedman was made. The observations correspond closely to those reported in the use of the Aschheim-Zondek reaction, with apparently a small percentage of error. Its advantages over the latter are found chiefly in the much shorter time necessary, its simplicity, and a possible economy of laboratory animals. From their experience the authors believe that it should prove to be an extremely valuable and practical method for the early diagnosis of pregnancy. In their series, with the exception of a single case of endometrial hyperplasia, a positive reaction always indicated the presence of active fetal tissue in biologic contact with the maternal blood stream, or recently (not over seventy-two hours) separated from it. A negative reaction does not entirely exclude the possibility of a pregnancy being present, since the intra-uterine or extra-uterine ovum may have perished and been retained for some period of time. The test may prove to be of some value in determining the life or death of the ovum in the early months, though not its immediate death, and not in the later months of pregnancy.

Study of Postoperative Value of Barbituric Acid Hypnotics.—Maxwell calls attention to the fact that opium and its derivatives increase the frequency and severity of postoperative distention and vomiting and are not necessary to relieve pain. Barbituric acid hyptonics are satisfactory from a pharmacologic and clinical standpoint when combined with an analgesic (amidopyrine). It is illogical to combine these agents in fixed proportion, because of the marked difference in their rate of elimination; it is rational to administer them separately according to clinical indications. Barbital, by virtue of its simple chemical structure, is less toxic and clinically as effective as its more complex and toxic modifications. The author recommends these hypnotics because their action is limited to the central nervous system and their use is followed by a high incidence of amnesia and by little disturbance of organic function.

Length of Labor.—Calkins and his associates believe that a more accurate observation of the resistance of the cervix (and the pelvic floor), as well as more accurate determination of the effectiveness of the labor pains, will be necessary in order to analyze the causes for the extreme variations in the length of labor so commonly encountered. More accurate determination of the resistance would likewise enable one to predetermine the probable duration of the labor. Deliberate appraisal of the various factors present in any given labor, when balanced against a more definite knowledge of the forces present and functioning, might also serve to reduce the present high rate of operative intervention. To this end, it is sugcardiac insufficiency developing as a sequela to chronic pulmonary diseases, in four cases of acute coronary thrombosis, and in three cases of coronary arteriosclerosis with chronic cardiac pain. In the cases of congestive heart failure the most striking effects observed were relief of dyspnea and orthopnea, diuresis and disappearance of edema, and a marked rise in the carbon dioxide content of the arterial blood. Other observations noted were relief of cyanosis, increased arterial oxygen saturation, decreased pulmonary ventilation, lowered pulse rate, and decrease in the lactic acid content of the blood. In cases of acute coronary thrombosis, life appeared to be prolonged by the inhalation of an oxygen-enriched atmosphere until the heart was able to recover from its acute functional disturbance. The cases of coronary arteriosclerosis with chronic cardiac pain were relieved by residence in a high oxygen atmosphere. These results indicate that oxygen want is the primary factor in the production of many forms of cardiac dyspnea. The increase in carbon dioxide content of the arterial blood occurs as an adaptative change which facilitates the elimination of carbon dioxide. The clinical improvement which patients suffering from the various forms of heart failure experience suggests a new employment of oxygen therapy by effective methods in these conditions.

Reaction to Nitrites in Arterial Hypertension.—Burgess states that, except for a transient fall in blood pressure after amyl nitrite, neither it nor glyceryl trinitrate when used in the usual therapeutic doses causes any consistent blood pressure changes in normal human beings or in persons with arterial hypertension with or without severe renal damage or retinal arteriolar sclerosis. The fall occurring after the use of amyl nitrite is so rapid and transitory and so independent of subjective symptoms that it is impossible to measure it accurately by taking blood pressure determinations in the ordinary way. This fact greatly decreases its usefulness as a test for arteriolar relaxability in estimating the prognosis in arterial hypertension. In persons suffering from attacks of angina pectoris of the usual ambulatory type, a rapid fall in systolic and usually in diastolic pressure takes place after the use of these drugs. The pain relief that occurs in these cases of ambulatory angina is independent of the pressure levels, and therefore apparently independent of the action of the nitrites on the peripheral vessels, but due to their action in increasing coronary circulation. The cause of the pain in ambulatory angina is probably an ischemia of the myocardium dependent on an insufficient blood supply due to disease of the coronary arteries.

Auricular Flutter and Complete Heart Block: With Restoration of Sinus Rhythm and Auriculoventricular Conduction.—Gager restored a patient with complete heart block to sinus rhythm and auriculoventricular conduction by the use of quinidine sulphate. Physical and mental improvement resulted. Fifteen cases were found in the literature showing the association of auricular flutter and total block, and the clinical phenomena and criteria for diagnosis are reviewed. From experimental and clinical observations in partial block and from the results in three cases of complete block, the author shows the value of restoring sinus control in cases of auricular flutter.

Sulphur for Production of Fever in Peripheral Vascular Diseases.—Waller and Allen made observations on pain at the site of injection, on relief of pain in ulcerated or gangrenous regions, on healing of ulcers, on height and duration of fever, and on chill and leukocytosis in fifteen cases of peripheral vascular disease, in which thirty-two intramuscular injections of sulphur, 2 per cent, in olive oil were given. Fever began about seven hours after the injection; the temperature reached an average maximal level of 102 F. and lasted an average of fifty hours. Chills occurred following approximately 50 per cent of the injections, but they were mild when doses of suspension of sulphur of 1.5 or 2 cc. were given. The most satisfactory dose in the treatment of peripheral vascular disease was 1.5 or 2 cc. Greater amounts were rarely necessary to produce effect even later in the course of the injections. Clinical improvement was as marked following intramuscular injection of sulphur as that induced by intravenous injection of typhoid vaccine, and occasionally it was more striking. The pain at the site of the injection varied from moderate to severe and constituted the greatest disadvantage to intramuscular injection of sulphur in olive oil. Sulphur in olive oil, injected intramuscularly, in the treatment of peripheral vascular disease, is most satisfactory for persons of advanced age, for those who are resistant to treatment by vaccine, and for those in whom the pain from the injection is not excessive.

Mediastinal Displacement in Pneumothorax.—Pollock gives roentgen evidence that a disturbance of the normal physiologic intrathoracic pressure during the course of artificial pneumothorax therapy may produce mediastinal displacement when the mediastinum is sufficiently flexible. Mediastinal displacements eventrating into the contralateral lung during the phase of expiration are not of clinical significance. However, fixed displacements in the presence of a relatively nonelastic mediastinal pleura produced by excessive pressure in the pneumothorax cavity may give rise to respiratory embarrassment and a sense of pressure to the stage of discomfort. A reduction of the displacement results in comfort to the patient. Mediastinal displacement depends on flexibility of the mediastinum, the intrathoracic pressure in the pneumothorax cavity, and the relative fixation of the mediastinal contents. A relatively flexible mediastinum usually occurs in younger adults early in artificial pneumothorax treatment, and the mediastinum tends to become less and less flexible as pneumothorax therapy is continued.

Archives of Dermatology & Syphilology, Chicago

24: 537-724 (Oct.) 1931

Sensitizations: Regional, Seasonal, Dietary and Other Influences Accounting for Variations and Fluctuations. M. B. Sulzberger, New York, and R. L. Mayer, Breslau, Germany.—p. 537.

Allergic Skin Reaction. H. L. Alexander, St. Louis.—p. 543.

*Bacterial Protein Fever in Treatment of Syphilis in Rabbit. J. A. Kolmer, Philadelphia.—p. 546.

Eczema Due to Fungi: Report of Case in an Eighteen Months Old Baby. S. M. Peck and G. Salomon, New York.—p. 554.

Schizosaccharomycosis: I. Present Status of Identification of Schizosaccharomyces Hominis and Its Results. T. Benedek, Leipzig, Germany.—p. 557.

*Proliferative Gingivitis of Pregnancy: Cases. S. Monash, New York.—p. 580.

Leukemia Cutis: Case. F. R. Schmidt, Chicago.—p. 587.

*Syphilitic Bursopathy of Verneuil. V. C. Garner and A. G. Schoch, Philadelphia.—p. 591.

*Dermatitis Venenata Due to Shoe Leather: Two Cases. G. M. Lewis, New York.—p. 597.

Xanthoma Diabeticorum: Case. H. J. Templeton and E. E. Chouret, Oakland, Calif.—p. 604.

Kerion Microsporicum with Hematogenous and Ectogenous Microsporids: Case, with Reference to Literature. A. Blumenfeld, Boston.—p. 607.

Macular Atrophy of Skin. L. Chargin and H. Silver, New York.—p. 614.

Protein Fever in Rabbit Syphilis.—Kolmer found that the intravenous injection of typhoid-paratyphoid vaccine into syphilitic rabbits in doses of from 1,000,000 to 100,000,000 per kilogram of weight produced a rise of rectal temperature of from 2 to 4 or 5 degrees Fahrenheit, lasting several hours and reaching the preinjection level within twenty-four hours. The treatment of rabbits with acute testicular syphilis with ten intravenous injections of increasing amounts of typhoid-paratyphoid vaccine at intervals of seventy-two hours did not result in complete cure in any of the animals. Ten intravenous injections of the vaccine at intervals of seventy-two hours, together with five intravenous injections of arsphenamine in doses of 0.002 Gm. per kilogram at weekly intervals, did not result in the complete cure of any of the rabbits with acute testicular syphilis. Ten intravenous injections of the vaccine at intervals of seventy-two hours, together with five intramuscular injections of potassium bismuth tartrate in doses of 0.001 Gm. per kilogram at weekly intervals, did not result in the complete cure of any of the rabbits. The intravenous injection of from 0.008 to 0.4 cc. of Coley's fluid per kilogram of weight into syphilitic rabbits produced a rise of rectal temperature of from 3 to 5 or 6 degrees Fahrenheit which lasted several hours and which reached the preinjection level within twenty-four hours. None of the rabbits with acute testicular syphilis that received ten intravenous injections of increasing amounts of Coley's fluid at intervals of seventy-two hours were completely cured. The rabbits with acute testicular syphilis that received ten intravenous injections of arsphenamine in doses of 0.002 Gm. per kilogram or five intramuscular injections of potassium bismuth

direct treatment for this disease in the future. Cures have been attributed to various factors, such as the age and the resistance of the patient and a low virulence of the organism. Statistics of the collected cases show the highest percentage of cures among patients above 20 years of age (33 per cent), and the lowest percentage in infants. The authors believe that the traditional and fixed idea that a patient with tuberculous meningitis must die should be reconsidered. No doubt, a recovery is extremely rare, but no one can foretell when this unexpected favorable termination may occur. The tendency to discard the diagnosis of tuberculous meningitis and disregard such laboratory observations as the presence of tubercle bacilli and successful inoculation into guinea-pigs, merely because the patient recovered, seems unscientific and illogical.

Exophthalmic Goiter. — Reveno advances the hypothesis that exophthalmic goiter is primarily a disturbance resulting from a long continued toxic process in the intestinal tract. This process not only damages the thyroid to the end that varying amounts of its functioning tissue are destroyed but causes a faulty and irregular metabolism of the amino-acid tyrosine, so that an excess of thyroxine, epinephrine and tyramine is produced. These conclusions are reached in view of (1) the inadequacy of the thyrogenic theory of the disease; (2) the work of McCarrison on the effects of toxic material in the intestinal tract on the thyroid; (3) the close relationship between the chemical constitution of thyroxine, epinephrine and tyramine; (4) the common source of these three substances, viz., tyrosine; (5) the changes in the normal tyrosine-tyrosinase reaction and the decarboxylization process for conversion of tyrosine to phenols, with resulting overproduction of the base tyramine, and (6) the pharmacologic action of tyramine.

Phenolsulphonphthalein Test. — Hanner and Whipple describe experiments from which it is clear that in dogs with necrosis of the liver due to chloroform poisoning there is a distinct rise in the elimination of phenolsulphonphthalein by the normal kidney. A rise in the elimination of phenolsulphonphthalein from a control level of from 75 to 78 per cent to from 90 to 97 per cent may be noted. With repair of the hepatic injury, the elimination of phenolsulphonphthalein returns to normal. Phosphorus poisoning gives a similar but less striking reaction. With experimental biliary obstruction in the dog, the same general reaction is noted, with a definite increase in the elimination of phenolsulphonphthalein by the normal kidney. After hepatic injury due to chloroform, the dog's liver does not remove phenolsulphonphthalein from the blood stream and does not excrete it in the bile, whereas in a normal dog the liver removes much phenolsulphonphthalein from the blood, and about 10 per cent of the injected phenolsulphonphthalein may by recovered from the bile within two hours. A chronic biliary fistula and an Eck fistula may permit a smaller excretion of phenolsulphonphthalein in the bile and a corresponding rise in the elimination of the dye in the urine. There is no evidence that a cholagogue, whether in the normal dog or in one with a biliary fistula, increases the elimination of phenolsulphonphthalein by way of the bile, and consequently the urinary excretion of phenolsulphonphthalein is unchanged. Phenolsulphonphthalein given by mouth is absorbed and reappears in the urine only in quantities equal to from 3 to 5 per cent of the amount administered. Reabsorption, therefore, is a negligible factor when applied to the phenolsulphonphthalein eliminated through the bile into the duodenum. From these experiments and the observations of other workers, it may be concluded that the elimination of phenolsulphonphthalein by the liver and kidney under these conditions is identical in the dog and man. Clinically, an unusually high renal elimination of phenolsulphonphthalein should suggest pathologic changes in the liver. Combined renal and hepatic disease calls for cautious analysis of the renal elimination of phenolsulphonphthalein.

Tumors of Heart and Pericardium.—According to Yater, the symptomatology of tumors of the heart and pericardium may be divided into two classes—that which is not suggestive of tumor of the heart and that which is. In the first class are those cases in which there are no symptoms referable to cardiac dysfunction, those in which there is terminal cardiac breakdown, those in which symptoms of simple congestive heart failure dominate the clinical picture, those in which sudden death occurs with or without previous cardiac symptoms, and those in which the clinical picture is that of subacute bacterial endocarditis. In the second class the clinical types may be quite diverse but should serve to call to mind the possibility of tumor of the heart. Any case of heart block in which no satisfactory explanation of the arrhythmia is obtainable may be one of tumor breaking through or originating in the main portion of the conduction apparatus. When symptoms referable to disturbance of function of a portion of the heart occur, tumor of that part of the heart is a diagnostic possibility. In the case of pedunculated intracavitary tumor obstructing a cardiac orifice, usually the mitral or tricuspid, certain deviations from the usual symptomatology of endocarditis are often present. The history of rheumatic infection is absent; the course of congestive failure is progressive; there is little or no response to digitalis, and the physical signs may change remarkably with change of posture. In every case in which tricuspid stenosis seems to be present, tumor should be suspected because inflammatory stenosis of that orifice is exceedingly rare. Acquired pulmonic stenosis should be considered the result of neoplastic obstruction. If in a person who is known to harbor a malignant neoplasm cardiac symptoms develop which cannot be otherwise explained, it is reasonable to assume that metastatic invasion of the heart has occurred. Accumulations of hemorrhagic fluid in the pericardium are suggestive of subepicardial or pericardial neoplasm, and hemorrhagic pleural effusions are not uncommon in malignant disease of the heart or pericardium. A localized enlargement of the heart or an irregularity of outline associated with enlargement as shown in the roentgenogram is suggestive of tumor of the heart as well as aneurysm and mediastinal tumor.

Regenerated Hepatic Tissue.—Althausen states that, in toxic cirrhosis of the liver, vigorous regeneration of tissue maintains the carbohydrate metabolism-regulating function and probably other metabolic activities of this organ. Owing to a loss of the original structure of the liver in this disease, the new hyperplastic nodules lack connection with bile channels, accounting in this manner for marked impairment in the excretion of dye. This information can be utilized by the clinician for differential diagnosis of toxic cirrhosis of the liver by the use of two suitable tests of hepatic function.

Archives of Pathology, Chicago

12: 521-688 (Oct.) 1931

Periarteritis Nodosa Complicated by Fatal Intrapericardial Hemorrhage: Case. B. M. Vance and J. E. Graham, New York.—p. 521.

Effects of Ultraviolet Rays, Radium and X-Rays on Proteins. Mona Spiegel-Adolf, Vienna, Austria, and Philadelphia.—p. 533.

Pseudohermaphroditismus Masculinus Externus Associated with Suprarenal Hyperplasia and Vascular Hypertension: Case. Claire E. Healey and C. C. Guy, Chicago.—p. 543.

Malignant Hemangioma of Lung with Multiple Visceral Foci: Case. Martha Wollstein, New York.—p. 562.

Experimental Scarlatinal Nephritis in Dog. C. W. Duval, New Orleans.—p. 572.

Anomalous Origin and Course of Left Coronary Artery. A. R. Kintner, Rochester, Minn.—p. 586.

Homeotransplantation and Heterotransplantation in Guinea-Pig: Effects of Graded Degrees of Heat on Cartilage and on Thyroid Gland. W. J. Siebert, St. Louis.—p. 590.

Association American M. Colleges Journal, Chicago

6: 339-400 (Nov.) 1931

Place of Postgraduate Medical Education. W. C. Rappleye, New York.—p. 339.

Premedical Education. W. D. Reid, Boston.—p. 345.

Report of Data Pertinent to Problem of Selection of Medical Students. Doris F. Twitchell, Ann Arbor, Mich.—p. 357.

Manikin Practice in Midwifery Teaching. C. B. Reed, Evanston, Ill.—p. 362.

Pioneer Medical Education in Asia. S. H. Liljestrand, Chengtu, China.—p. 366.

Journal of Clinical Investigation, Baltimore

10: 689-984 (Oct. 20) 1931

Relationship Between Environment and Basal Insensible Loss of Weight. F. H. Wiley and L. H. Newburgh, Ann Arbor, Mich.—p. 689.

Method for Determination of Heat Production Over Long Periods of Time. L. H. Newburgh, F. H. Wiley and F. H. Lashmet, Ann Arbor, Mich.—p. 703.

Improved Method for Determination of Water Balance. F. H. Wiley and L. H. Newburgh, Ann Arbor, Mich.—p. 723.

direct treatment for this disease in the future. Cures have been attributed to various factors, such as the age and the resistance of the patient and a low virulence of the organism. Statistics of the collected cases show the highest percentage of cures among patients above 20 years of age (33 per cent), and the lowest percentage in infants. The authors believe that the traditional and fixed idea that a patient with tuberculous meningitis must die should be reconsidered. No doubt, a recovery is extremely rare, but no one can foretell when this unexpected favorable termination may occur. The tendency to discard the diagnosis of tuberculous meningitis and disregard such laboratory observations as the presence of tubercle bacilli and successful inoculation into guinea-pigs, merely because the patient recovered, seems unscientific and illogical.

Exophthalmic Goiter. — Reveno advances the hypothesis that exophthalmic goiter is primarily a disturbance resulting from a long continued toxic process in the intestinal tract. This process not only damages the thyroid to the end that varying amounts of its functioning tissue are destroyed but causes a faulty and irregular metabolism of the amino-acid tyrosine, so that an excess of thyroxine, epinephrine and tyramine is produced. These conclusions are reached in view of (1) the inadequacy of the thyrogenic theory of the disease; (2) the work of McCarrison on the effects of toxic material in the intestinal tract on the thyroid; (3) the close relationship between the chemical constitution of thyroxine, epinephrine and tyramine; (4) the common source of these three substances, viz., tyrosine; (5) the changes in the normal tyrosine-tyrosinase reaction and the decarboxylization process for conversion of tyrosine to phenols, with resulting overproduction of the base tyramine, and (6) the pharmacologic action of tyramine.

Phenolsulphonphthalein Test. — Hanner and Whipple describe experiments from which it is clear that in dogs with necrosis of the liver due to chloroform poisoning there is a distinct rise in the elimination of phenolsulphonphthalein by the normal kidney. A rise in the elimination of phenolsulphonphthalein from a control level of from 75 to 78 per cent to from 90 to 97 per cent may be noted. With repair of the hepatic injury, the elimination of phenolsulphonphthalein returns to normal. Phosphorus poisoning gives a similar but less striking reaction. With experimental biliary obstruction in the dog, the same general reaction is noted, with a definite increase in the elimination of phenolsulphonphthalein by the normal kidney. After hepatic injury due to chloroform, the dog's liver does not remove phenolsulphonphthalein from the blood stream and does not excrete it in the bile, whereas in a normal dog the liver removes much phenolsulphonphthalein from the blood, and about 10 per cent of the injected phenolsulphonphthalein may by recovered from the bile within two hours. A chronic biliary fistula and an Eck fistula may permit a smaller excretion of phenolsulphonphthalein in the bile and a corresponding rise in the elimination of the dye in the urine. There is no evidence that a cholagogue, whether in the normal dog or in one with a biliary fistula, increases the elimination of phenolsulphonphthalein by way of the bile, and consequently the urinary excretion of phenolsulphonphthalein is unchanged. Phenolsulphonphthalein given by mouth is absorbed and reappears in the urine only in quantities equal to from 3 to 5 per cent of the amount administered. Reabsorption, therefore, is a negligible factor when applied to the phenolsulphonphthalein eliminated through the bile into the duodenum. From these experiments and the observations of other workers, it may be concluded that the elimination of phenolsulphonphthalein by the liver and kidney under these conditions is identical in the dog and man. Clinically, an unusually high renal elimination of phenolsulphonphthalein should suggest pathologic changes in the liver. Combined renal and hepatic disease calls for cautious analysis of the renal elimination of phenolsulphonphthalein.

Tumors of Heart and Pericardium.—According to Yater, the symptomatology of tumors of the heart and pericardium may be divided into two classes—that which is not suggestive of tumor of the heart and that which is. In the first class are those cases in which there are no symptoms referable to cardiac dysfunction, those in which there is terminal cardiac breakdown, those in which symptoms of simple congestive heart failure dominate the clinical picture, those in which sudden death occurs with or without previous cardiac symptoms, and those in which the clinical picture is that of subacute bacterial endocarditis. In the second class the clinical types may be quite diverse but should serve to call to mind the possibility of tumor of the heart. Any case of heart block in which no satisfactory explanation of the arrhythmia is obtainable may be one of tumor breaking through or originating in the main portion of the conduction apparatus. When symptoms referable to disturbance of function of a portion of the heart occur, tumor of that part of the heart is a diagnostic possibility. In the case of pedunculated intracavitary tumor obstructing a cardiac orifice, usually the mitral or tricuspid, certain deviations from the usual symptomatology of endocarditis are often present. The history of rheumatic infection is absent; the course of congestive failure is progressive; there is little or no response to digitalis, and the physical signs may change remarkably with change of posture. In every case in which tricuspid stenosis seems to be present, tumor should be suspected because inflammatory stenosis of that orifice is exceedingly rare. Acquired pulmonic stenosis should be considered the result of neoplastic obstruction. If in a person who is known to harbor a malignant neoplasm cardiac symptoms develop which cannot be otherwise explained, it is reasonable to assume that metastatic invasion of the heart has occurred. Accumulations of hemorrhagic fluid in the pericardium are suggestive of subepicardial or pericardial neoplasm, and hemorrhagic pleural effusions are not uncommon in malignant disease of the heart or pericardium. A localized enlargement of the heart or an irregularity of outline associated with enlargement as shown in the roentgenogram is suggestive of tumor of the heart as well as aneurysm and mediastinal tumor.

Regenerated Hepatic Tissue.—Althausen states that, in toxic cirrhosis of the liver, vigorous regeneration of tissue maintains the carbohydrate metabolism-regulating function and probably other metabolic activities of this organ. Owing to a loss of the original structure of the liver in this disease, the new hyperplastic nodules lack connection with bile channels, accounting in this manner for marked impairment in the excretion of dye. This information can be utilized by the clinician for differential diagnosis of toxic cirrhosis of the liver by the use of two suitable tests of hepatic function.

Archives of Pathology, Chicago

12: 521-688 (Oct.) 1931

Periarteritis Nodosa Complicated by Fatal Intrapericardial Hemorrhage: Case. B. M. Vance and J. E. Graham, New York.—p. 521.
Effects of Ultraviolet Rays, Radium and X-Rays on Proteins. Mona Spiegel-Adolf, Vienna, Austria, and *Philadelphia*.—*p. 533.*
Pseudohermaphroditismus Masculinus Externus Associated with Suprarenal Hyperplasia and Vascular Hypertension: Case. Claire E. Healey and C. C. Guy, Chicago.—p. 543.
Malignant Hemangioma of Lung with Multiple Visceral Foci: Case. Martha Wollstein, New York.—p. 562.
Experimental Scarlatinal Nephritis in Dog. C. W. Duval, New Orleans. —p. 572.
Anomalous Origin and Course of Left Coronary Artery. A. R. Kintner, Rochester, Minn.—p. 586.
Homeotransplantation and Heterotransplantation in Guinea-Pig: Effects of Graded Degrees of Heat on Cartilage and on Thyroid Gland. W. J. Siebert, St. Louis.—p. 590.

Association American M. Colleges Journal, Chicago

6: 339-400 (Nov.) 1931

Place of Postgraduate Medical Education. W. C. Rappleye, New York. —p. 339.
Premedical Education. W. D. Reid, Boston.—p. 345.
Report of Data Pertinent to Problem of Selection of Medical Students. Doris F. Twitchell, Ann Arbor, Mich.—p. 357.
Manikin Practice in Midwifery Teaching. C. B. Reed, Evanston, Ill. —p. 362.
Pioneer Medical Education in Asia. S. H. Liljestrand, Chengtu, China. —p. 366.

Journal of Clinical Investigation, Baltimore

10: 689-984 (Oct. 20) 1931

Relationship Between Environment and Basal Insensible Loss of Weight. F. H. Wiley and L. H. Newburgh, Ann Arbor, Mich.—p. 689.
Method for Determination of Heat Production Over Long Periods of Time. L. H. Newburgh, F. H. Wiley and F. H. Lashmet, Ann Arbor, Mich.—p. 703.
Improved Method for Determination of Water Balance. F. H. Wiley and L. H. Newburgh, Ann Arbor, Mich.—p. 723.

Journal of Infectious Diseases, Chicago

49: 271-365 (Oct.) 1931

Thermophilic Micro-Organisms from Imported Canned Shallots (Onions). P. S. Prickett, Evansville, Ind.—p. 271.
Electrophoretic Study of Sterile Filtrates of Cultures of Streptococci of Scarlet Fever and Erysipelas. L. E. Shinn, Chicago.—p. 281.
Mycobacterium: Ergosterol Content of Certain Species and Effect of Ergosterol on Their Growth. P. S. Prickett and O. N. Massengale, Evansville, Ind.—p. 297.
Tinctorial Transmutations of Acid-Fast Micro-Organisms and Virulence of Tubercle Bacilli. F. Eberson and Marion A. Sweeney, San Francisco.—p. 303.
Microbic Dissociation in Brucella Group. M. S. Marshall and Dorothy Jared, San Francisco.—p. 319.
Pyrogenic Reaction to Concentrated Antipneumococcus Serums, with Respect to Certain Serum Constituents. L. D. Felton and Gladys Kauffmann, Boston.—p. 337.
*Influence of Artificial Fever on Course of Experimental Poliomyelitis. C. W. Jungeblut and N. Kopeloff, New York.—p. 348.
Purification of Cultures of Treponema Microdentium by Centrifugation. E. E. Ecker and L. A. Weed, Cleveland.—p. 355.
*Various Colonies of Hemolytic Streptococci in Scarlet Fever. Ruth Tunnicliff, Chicago.—p. 357.

Artificial Fever and Experimental Poliomyelitis.—The different types of data obtained by Jungeblut and Kopeloff are somewhat conflicting, which makes it difficult for them to draw conclusions. Within the limitations of the experimental material, it appears to be proved that noninfectious fever of considerable intensity applied during the period of incubation, but maintained only over comparatively short periods of time, is not capable of altering the course of experimental poliomyelitis in the monkey to any significant extent. The same holds true for infectious fever produced by inoculation with Trypanosoma equiperdum, when the two infections are induced simultaneously. With a poliomyelitic infection superimposed on an existing febrile trypanosomiasis there may be a distinct prolongation of the period of incubation of the poliomyelitic infection, undoubtedly indicating some attenuation of the virus. Since the latter observation is based on one monkey alone, the authors do not know how regular this occurrence is. With syphilis a definite spirocheticidal effect in vivo may apparently be obtained by febrile temperatures that cause no obvious damage to the host. As regards poliomyelitis, it would seem that the production of a sufficiently intense fever to bring about destruction of the virus in vivo is not possible within a safe zone of raised temperature.

Hemolytic Streptococci in Scarlet Fever.—During the course of scarlet fever, especially during convalescence and in complications, Tunnicliff isolated atypical hemolytic streptococci alone or associated with typical Streptococcus scarlatinae. They appeared to have dissociated from the typical, or "normal," slightly granular, conical scarlatinal colonies and differed from them by forming on heated blood agar (chocolate agar) granular or smooth convex colonies and the rough conial colonies did not change chocolate agar; the granular convex colonies turned it green, while the smooth convex colonies varied in this respect. By the opsonic test, the cocci from dissociated colonies were not opsonified like the group of streptococci specific for scarlet fever, but by subculturing they were reverted, both colonically and immunologically, to typical scarlatinal streptococci.

Military Surgeon, Washington, D. C.

69: 483-578 (Nov.) 1931

Obesity and Its Treatment. G. C. Beach.—p. 483.
Diet and Disease: Just How Much Have We Learned About Their Real Relationship? M. H. Epstein.—p. 489.
The A. R. A. in Russia. W. R. Dear.—p. 499.
Since the Days of the Empire. G. F. Lull.—p. 512.
Congenital Absence of Radius and Club Hand: Case. D. N. W. Grant. —p. 518.
School of Aviation Medicine. B. B. Warriner.—p. 522.

New England Journal of Medicine, Boston

205: 841-892 (Oct. 29) 1931

Studies in Asthma: XIV. Bronchoscopy in Asthma. F. L. Weille, Boston.—p. 848.
*Immunity Factors in Recovery from Lobar Pneumonia and Results of Specific Treatment in Type I Pneumococcus Pneumonia. F. T. Lord, Boston.—p. 854.
George W. Gay Lectures in Medical Ethics. W. H. Robey, Boston.—p. 856.

Results of Specific Treatment in Type I Pneumococcus Pneumonia.—Lord has noted that specific serum treatment of type I pneumococcus lobar pneumonia lowers the mortality when used during the first three days of the illness but is ineffective after this interval. Humoral immunity is to be regarded as an important cause of recovery from pneumococcus lobar pneumonia. The discrepancy between the small amount and inconstant presence of protective substances in the blood and the decisive nature of crisis, occasional recovery at the usual time in spite of the early appearance of protection, and the ineffectiveness of serum treatment after the third day of the disease, suggest that other factors may also be concerned in the defensive mechanism.

New Orleans Medical and Surgical Journal

84: 311-428 (Nov.) 1931

Operative Correction of Uterine Retrodisplacements. W. T. Dannreuther, New York.—p. 311.
One Thousand Cases of Uterine Fibroids in Negro Race. H. B. Alsobrook, New Orleans.—p. 317.
Radium in Treatment of Certain Diseases of Uterus. J. W. Barksdale, Jackson, Miss.—p. 326.
Uterosalpingography with Lipiodol. J. P. Wall, Jackson, Miss.—p. 329.
New Anastomosis Button for Gastro-Intestinal Surgery. J. T. Nix, New Orleans.—p. 332.
Diagnosis and Significance of Splenic Enlargement. J. B. Guthrie, New Orleans.—p. 340.
Rheumatic Fever and Rheumatic Heart Disease. T. M. McMillan and C. F. Nichols, Philadelphia.—p. 346.
Home Treatment of Tuberculosis. W. A. Toomer, Tupelo, Miss.—p. 357.
Hypertension. T. R. Beach, Ellisville, Miss.—p. 362.
Lobar Pneumonia and Its Treatment. E. L. Walker, Magee, Miss.—p. 369.
Uses of Sodium Ethyl-1 Methyl-Butyl-Barbiturate (Pentobarbital-Sodium) in Medicine and Surgery. G. F. Carroll, Biloxi, Miss.—p. 375.
Standard Treatment of Malaria (Preliminary Report). J. M. Adams, Baton Rouge, La.—p. 379.
History Taking. A. H. Little, Oxford, Miss.—p. 388.

Ohio State Medical Journal, Columbus

27: 841-920 (Nov.) 1931

Advances in Our Knowledge of Etiology and Treatment of Chronic Arthritis and Rheumatic Manifestations. W. C. Stoner, Cleveland. —p. 861.
Hysterectomy. R. B. Drury, Columbus.—p. 863.
Maternal Mortality and Morbidity in Ohio. B. H. Carroll, Toledo.—p. 865.
Some Suggestions for Better Cooperation Between Psychiatrists and Lawyers. C. E. Kiely, Cincinnati.—p. 869.
Bacteriology of One Hundred Consecutive Tonsils. C. L. Spohr, Columbus.—p. 872.
Practical Professional Problems of Rural Health Administration. E. R. Hiatt, Troy.—p. 877.
Cardiac Pain: Clinical Consideration. F. Jukes, Akron.—p. 879.

Southwestern Medicine, Phoenix, Arizona

15: 449-502 (Oct.) 1931

Effects of Liver Diet on Nervous System Symptoms in Pernicious Anemia. W. C. Menninger, Topeka, Kan.—p. 449.
Medical Jurisprudence. H. H. Clark, Denver.—p. 453.
Conservative Treatment of Cancer of Mouth and Lower Lip. J. M. Martin, Dallas, Texas.—p. 458.
Diagnosis and Management of Rectal Cancer. C. Rosser, Dallas, Texas. —p. 464.
Personal Observations of Cholecystitis. J. Vance, El Paso, Texas.—p. 467.
Brain Injuries. S. D. Swope, El Paso, Texas.—p. 470.
Hypertensive Disease. D. G. Stine, Columbia, Mo.—p. 473.
Trichinosis: Report of Cases. J. A. Rawlings, C. Awe and J. M. Rawlings, El Paso, Texas.—p. 477.
Proctologic Odds and Ends. C. Rosser, Dallas, Texas.—p. 479.
Case of Tularemia. J. L. Murphy, El Paso, Texas.—p. 481.
Oral Diagnosis: With Especial Attention to Devital Roentgen-Ray Negative Tooth. L. A. Neil, El Paso, Texas.—p. 482.
Open Reduction in Treatment of Fractures, Selection of Cases, Types and Methods. A. C. Carlson, Jerome, Ariz.—p. 484.

Yale Journal of Biology & Medicine, New Haven

4: 1-115 (Oct.) 1931

Historical Studies on Nature and Treatment of Gunshot Wounds from Fifteenth Century to Present Time. T. Billroth, Berlin. Translated by C. P. Rhoads, Springfield, Mass.—p. 3.
Acute Hemorrhagic Necrosis of Pancreas: Four Cases. R. M. Goldstein. —p. 37.
Clinical Diagnosis of Intestinal Tuberculosis. E. H. Rubin, New York. —p. 45.
Bacterial Mutations. F. D'Herelle, New Haven, Conn.—p. 55.
Preclinical Sciences and Human Biology. H. S. Burr, New Haven, Conn.—p. 63.
Blood Picture of Normal Laboratory Animals. R. A. Scarborough, San Francisco.—p. 69.

lying the swelling may or may not be slightly inflamed. In either case this is not of assistance, for branchial cysts are subject to recurrent attacks of inflammation; indeed, the patient nearly always first presents himself with a branchial cyst thus complicated. A syringe is taken and some of the contents of the swelling aspirated. The unwary will say at once "pus," but branchial fluid and tuberculous pus in a syringe have precisely the same appearance. The fluid is sent to the bacteriologic laboratory, and the usual report in the case of a tuberculous abscess is: "No tubercle bacilli found. Cultures sterile." This report is also the most likely one to be received in the case of a sample of branchial fluid. In less than 10 per cent of cases are tubercle bacilli found in the aspirated contents of a tuberculous cervical abscess. The similarity between these two conditions is truly remarkable, and it is easy to appreciate why it is so common for a branchial cyst to be diagnosed as a tuberculous abscess, and how an erroneous diagnosis can be upheld by the authority of scientific laboratory investigation. If the following suggestions and tests are applied it is possible to segregate branchial cysts, which are comparatively rare, from tuberculous abscesses connected with the upper jugular chain, which are common: 1. Branchial cysts most often appear between 17 and 25 years of age. While their appearance may be delayed until much later, they are rarely seen before puberty. 2. On carefully palpating the sternocleidomastoid with the muscle in physiologic activity, as is occasioned when the chin is forcibly pushed against the palm of the hand, one finds that the sternocleidomastoid will be thinned and flattened over the cyst, but it is unaltered when the swelling is a tuberculous abscess. This test requires some practice before the results can be relied on. 3. If a drop or two of the aspirated fluid is placed on a glass slide, covered with a cover-slip, and examined immediately under the microscope with one-sixth power lens, the presence of numerous cholesterol crystals at once makes the diagnosis of branchial cyst certain. It is unwise, and quite unnecessary, to send the specimen to the laboratory, unless one is certain that the examination will be made at once, and one specifies that the information sought is with regard to the presence of cholesterol rather than bacteriologic characteristics. The foregoing test is so reliable that it is safe to predict that if it were applied generally the majority of branchial cysts would be correctly diagnosed as soon as they appeared. As it is, even after these tests have been applied conscientiously, a few cases escape detection. The reason for this is that therapeutic aspiration, and particularly the injection of medicated preparations, as is at present fashionable, robs branchial fluid of its characteristic cholesterol. Acute, or subacute, inflammation of the cyst sometimes has the same effect.

British Medical Journal, London

2: 787-832 (Oct. 31) 1931

*Problem of Child in Tuberculous Household. R. C. Wingfield.—p. 787.
*Broken Nose. E. W. Williams.—p. 791.
*Rôle of Pituitary in Etiology of Cancer. W. Susman.—p. 794.
*Torsion of Ovarian Cyst in Children. W. A. Steel.—p. 798.
Gangrene of Skin of Diphtheritic Origin. J. S. Anderson.—p. 800.

Problem of Child in Tuberculous Household.—Wingfield believes that the general practitioner must view the problem of the child in the tuberculous household mainly as a clinical problem; his duty is to the child and its parents rather than to the community at large. He should not have to examine all the contact children in his practice by the Mantoux reaction for evidence of infection and by the roentgen ray for evidence of lesion. He should not have to deal with these patients personally; these investigations should be made for him, and he should have a knowledge of their results. His duty is to watch and to turn his attention to the proper hygiene of the home. He must realize the danger not of exposure but of continuous exposure; that is to say, he must use every effort to sterilize the open case which is the source of contact, and to dilute the infection either by treatment or by segregation, partial or complete. Contact infants must be his especial care in this direction. He must teach the parent and the adult how by attention to a few simple hygienic rules they can minimize the danger to the children almost to the vanishing point. It is not his duty, and would be a waste of his time and injurious to his practice, if he were to say to the tuberculous mother that she must never see her child again. When the contact children of his practice reach adolescence is the time he must be most wise and wary. That is the time when the parent and child need guidance in the choice of work, mode of life and environment. That is the time when the roentgen ray will be particularly useful, for apical infiltration in childhood and adolescence, although apparently latent, always goes on to definite clinical pulmonary tuberculosis if untreated.

Broken Nose.—According to Williams, the common type of "broken nose" is due to lateral (but not backward) displacement of both nasal bones with imbrication. Treatment consists of disimpaction, free mobilization of both bones, and symmetrical molding together. No splints are needed. When the nose has been crushed, internal splinting is required to restore the profile; the author describes a convenient form of splint. Resection of the septum may be needed. When a portion of the maxilla is impacted in the antrum, access is obtained by the canine fossa route. If much damage has been caused to skin and soft parts, every effort must be made to conserve tissue, limit sepsis, and prevent adhesions.

Pituitary in Etiology of Cancer.—On the basis of the hypothesis that in cancer cases the anterior pituitary was overactive, and the posterior pituitary underactive, two patients with advanced cancer were treated by Susman with solution of pituitary alone, and five with solution of pituitary and theelin. All were placed on a diet low in carbohydrate. An epithelioma began to separate off and was enucleated after seven weeks of this treatment. The growing edge disappeared in five days. All the patients showed regressive changes in the tumors, and life appeared to be definitely prolonged.

Torsion of Ovarian Cyst in Children.—Steel reviews more than twenty-five cases of torsion of ovarian cyst in children and gives an illustrative case. Ovarian tumor, though rare, increases in frequency with the age of the child and is most commonly encountered between the ages of 10 and 14. Torsion, although very rare, is the commonest complication of these tumors. A correct diagnosis of the condition is decidedly more often the exception than the rule, in spite of the fact that a constant clinical picture is found in almost every case. The typical features present are a history of similar but less severe attacks, the sudden onset of pain, an increase of temperature and pulse rate, the palpable abdominal tumor with overlying tenderness and rigidity, and the tender cystic mass, which can be made out by rectum. The diagnosis is sometimes very difficult, the lesion for which torsion of a cyst is most often mistaken being an appendical abscess.

Journal of Anatomy, London

66: 1-156 (Oct.) 1931

Some Observations on Myelination in Human Central Nervous System. M. F. L. Keene and E. E. Hewer.—p. 1.
History of Prochordal Plate in Rabbit. Y. H. Aasar.—p. 14.
Further Note on Prochordal Plate in Man. J. P. Hill and J. Florian.—p. 46.
Partial Duplication of Notochord in Human Embryo of 11 Mm. Greatest Length. T. B. Johnston.—p. 48.
Growth Changes in Bushman Mandible. L. H. Wells.—p. 50.
Craniocleido Dysostosis and Normal Skull Formation. R. W. Reid.—p. 64.
Intrapontile Part of Motor Root of Facial Nerve. E. Vernon.—p. 66.
Structure of Thoracic Inferior Vena Cava in Rabbit and in Cat, and Its Functional Significance. K. J. Franklin.—p. 76.
Constitution of Ligamentum Cruciatum Cruris. T. T. Stamm.—p. 80.
Secondary Os Calcis. J. Mercer.—p. 84.
Circumaortic Venous Rings. P. N. B. Odgers.—p. 98.
Paired Oviducts in Fowl. F. A. E. Crew.—p. 100.
Development of Hyoid Bar and Rays in Plagiostomi. F. H. Edgeworth.—p. 104.
Craniometric Memoirs: IV. Horizontal Zones of Facial Norma in Modern and Fossil Man. J. Cameron.—p. 114.
Note on Relative Lengths of First and Second Toes of Human Foot. B. M. Skinner.—p. 123.

Medical Journal of Australia, Sydney

2: 405-436 (Oct. 3) 1931

*Surgical Treatment of Constipation. H. C. Trumble.—p. 405.
*Hodgkin's Disease: A Treatise. L. Utz and Leila Keatinge.—p. 412.

Surgical Treatment of Constipation.—Trumble believes that it is possible that section of the hypogastric nerve alone would be sufficient to permit of relaxation of the sphincters and

Paris Médical

2: 345-356 (Oct. 24) 1931

Vernes Resorcinol Reaction in Nontuberculous Diseases. C. Gernez. —p. 345.

pH of the Urine in Various Psychoses. Laignel-Lavastine, R. Cornelius and G. d'Heucqueville.—p. 348.

*Pain Syndrome of Fifth Lumbar Vertebra in Young Women. D. C. Rœderer.—p. 354.

Pain Syndrome of Fifth Lumbar Vertebra.—For several years, Rœderer has been noting a pain syndrome, not accompanied by contracture, which affects the region of the fifth lumbar vertebra in young women at the end of puberty. These young women range in age from 13 to 25 years (the oldest still have the exterior habitus of adolescents). The pain is fixed and constant, never very acute, but annoying by its persistence. Some patients complain simply of inconvenience; there is sometimes a sensation of burning or pricking and almost always a sensation of heaviness. The pains are spontaneous, with periods of eclipse. A prolonged upright or sitting position sometimes brings on the symptoms. The pain does not radiate to the buttock, thigh, groins or organs in the true pelvis. The menses usually aggravate the condition. The evolution of the syndrome is irregular; several weeks of latency are often followed by a reappearance of symptoms without apparent cause. Generally after from twelve to eighteen months the pains disappear either gradually or suddenly. The recovery seems absolute; a follow-up of old cases proved that it is permanent. The syndrome resembles that of painful occult spina bifida of the fifth lumbar vertebra reported by other workers. However, the author's syndrome appears in women only, while the related syndrome occurs in both sexes. Palpation localizes a painful spot in the region of the spinous process of the fifth lumbar and the first sacral vertebra; but the sensitive region is sometimes more extensive and includes the articular processes between the fourth and fifth lumbar vertebrae and even the transverse processes of the sacral vertebrae. However, the spinous process of the fifth lumbar or the first sacral vertebra always responds with the maximum of pain on pressure. The diagnosis of the syndrome is very delicate and is sometimes uncertain for weeks and even months; there is no indication of Pott's disease or sacral osteitis, and the roentgenograms are negative. The therapy is only palliative. The author recommends rest, with local and general sedatives. He believes this syndrome is sufficiently characteristic to be designated as an entity.

Presse Médicale, Paris

39: 1533-1556 (Oct. 21) 1931

*Mean Hypertension During Exertion: Cardiac Function. H. Vaquez, D. M. Gomez and R. J. Lajoie.—p. 1533.

Gastrectomy and Gastro-Enterostomy in Treatment of Ulcer. Bergeret and Caroli.—p. 1535.

Criteria of Healing in Gastric and Duodenal Ulcers. R. A. Gutmann. —p. 1537.

Action of Insulin in Ulcerous Cancers of Skin. S. F. Gomes da Costa. —p. 1541.

Mean Hypertension During Exertion.—Vaquez and his co-workers believe their researches demonstrate that the mean arterial pressure constitutes a true physiologic constant. In a previous paper (*Presse médicale* 39:1309 [Sept. 5] 1931; abstr. The Journal, November 7, p. 1419), Vaquez and Gomez described the method for the oscillometric determination of the mean blood pressure. Subsequent researches led to the following conclusions: In well compensated cardiac disease the mean pressure is similar to what it is under normal conditions; that is, following exertion there is no change or very slight change in the mean pressure. It is otherwise when cardiac insufficiency is present and the right ventricle is affected. An elevation of the mean pressure is not due to acceleration of the pulse, since there is often acceleration of the pulse in the compensated condition. In dextrocardiac insufficiency, moreover, the elevated mean pressure subsequent to exertion returns but slowly to its former level. In persons with compensated cardiac disease an elevation of the mean arterial pressure following exertion may be a premonitory sign of approaching cardiac failure. The authors believe that a consideration of the extreme pressures is not sufficient. To determine the exact functional capacity of the heart, the mean arterial pressure should be ascertained both in a state of rest and in a state of action.

Annali Italiani di Chirurgia, Naples

10: 1008-1109 (Sept. 30) 1931

Bilobate Stomach: Autoplastic Reconstruction; Recovery. G. Pascale. —p. 1008.

Possibility of Contaminating Gloves and Tissues During Surgical Interventions. L. Torraca and M. Romeo.—p. 1027.

*Mechanism of Action of Hypertonic Solutions of Sodium Chloride. A. G. Chiariello.—p. 1047.

*Injections of Calcium Salts into Tissues Adjacent to Fractures, Under Pathologic Conditions. S. Rollo.—p. 1059.

Uronephrosis and Tuberculous Infection. G. B. Cengiarotti and E. Nalin. —p. 1069.

Action of Hypertonic Solutions of Sodium Chloride.—Chiariello studied the effects of intravenous injections of hypertonic solutions of sodium chloride on dogs in which both ureters were ligated experimentally. He observed that the dogs so treated and doomed to die survived longer than the controls that were not so treated. Such survival amounted, on the average, to 21.8 hours. It is difficult to explain the mechanism of the action, but the author is inclined to assume a direct antitoxic action of the hypertonic solutions.

Injections of Calcium Salts into Tissues Adjacent to Fractures, Under Pathologic Conditions.—Rollo reports that, from his experiments on animals (rabbits and guinea-pigs), it appears that injections of calcium glycerophosphate into the tissues immediately adjacent to a fracture serve to stimulate the focus to greater activity. They cause the early and abundant formation of new connective tissue and favor the ossification of the bone. While the second fact was established by previous experiments on sites of fractures under ordinary physiologic conditions, the first is proved especially in cases of partial diaphyseal resection and the interposition of muscle tissue between the bone fragments, in which (through parvicellular infiltration and the ample formation of new connective tissue) the destruction and replacement of the muscle tissue, and the formation of callus, inducing ossification, were facilitated. In the controls the interposed muscle tissue, preserving its integrity longer, impeded the normal evolution of the callus.

Giornale di Clinica Medica, Parma

12: 1039-1102 (Oct. 10) 1931

*Pulmonary Hyperventilation: Behavior of Lactic Acid in Blood and Alkali Reserve. G. Lucchi and B. Manfredini.—p. 1042.

Effects of Pulmonary Tuberculosis and of Artificial Pneumothorax on Glutathione of Blood. G. Borsalino.—p. 1057.

Pulmonary Hyperventilation; Behavior of Lactic Acid in Blood and Alkali Reserve.—Lucchi and Manfredini, continuing their researches on pulmonary hyperventilation, studied in twenty subjects the behavior of lactic acid of the blood and of the alkali reserve in voluntary hyperpnea. They found a notable and almost constant diminution of the alkali reserve and an increase of the lactic acid, both being more marked the more intense and the more extensive the muscular spasms were. The authors consider that the diminution of the alkali reserve is due partly to an increased elimination of carbon dioxide through the respiratory passages and partly to the hyperlacticemia provoked by the effort of the musculature and, above all, by the muscular spasms.

Policlinico, Rome

38: 477-532 (Oct. 1) 1931. Medical Section

*Experimental and Clinical Data on Prophylactic and Therapeutic Value of Antidiphtheritic Serum. T. Pontano.—p. 477.

Polycystic Kidney. R. Rossoni.—p. 498.

Existence of Endocarditis Due to Bacterium Coli-Commune. G. Borruso. —p. 511.

Tuberculosis of Spleen with Large Caseous Nodes. P. Mariconda.— p. 524.

Prophylactic and Therapeutic Value of Antidiphtheritic Serum.—Pontano studies the diphtheria problem in its three fundamental aspects: experimental, statistical and clinical. Experiments on the guinea-pig have led to wrong interpretations of human diphtheria. The prophylactic and therapeutic experiments with serums on the guinea-pig show only the prophylactic and noncurative value of the serum. The author took up the experiment by infecting the guinea-pig with bacilli and not merely intoxicating it with a toxin. He confirms the prophylactic value against the bacterial infection, both as to

Use of Citochol Extracts for Serodiagnosis of Syphilis by Means of Flocculation. H. Sachs and E. Witebsky.—p. 1993.
Milk Hygiene. M. Klimmer.—p. 1994.
*Aspects of Diabetes with Insulin Resistance. F. Serio.—p. 1998.
Action of Corrosive Mercuric Chloride. W. Heubner.—p. 1999.
*Intracutaneous Injection and Basal Metabolism. W. Crecelius.—p. 1999.
Modification of Bactericidal Power of Blood by Mineral Salts. L. K. Wolff.—p. 2000.
Idem. H. G. Scholtz.—p. 2000.
Ketonuria: Test of Partial Function of Liver. H. Staub and P. Clerc. —p. 2001.
Water Metabolism During Valvular Defects. H. Elias and J. Goldstein. —p. 2002.
Glycolability and Its Clinical Manifestation. G. Fanconi.—p. 2002.

Function of Stomach Following Removal of Antrum Pylori.—Johnson performed on dogs resection of the antrum pylori and gastro-enterostomy, and, immediately below, a duodenal fistula was made. It was found that the secretion of such a stomach is reduced, especially if porridge and soups are fed; but even if meat, bread and vegetables are given, the gastric secretion is reduced. If soups and porridge are fed, the stomach retains the food only for a short time, but solid foods are retained much longer. As soon as the food enters the duodenum there takes place, even under these unphysiologic conditions, a complete mixture with the duodenal secretions, and thus the hydrochloric acid is largely neutralized.

Aspects of Diabetes with Insulin Resistance.—Serio states that patients with the form of diabetes which is resistant to insulin usually appear well nourished, have only slight acidosis and are influenceable only slightly by dietetic measures. He then describes the clinical history of such a patient. Since dietary measures as well as insulin therapy failed in their effect and since the patient showed slight symptoms of hyperthyroidism, an antithyroidal preparation was administered in increasing quantities. After forty days of this medication the insulin resistance had completely disappeared, so that 14 units of insulin was now sufficient to reduce the glycemia considerably and even to produce hypoglycemic symptoms. The sugar content of the blood during fasting became normal and could be kept in normal limits in spite of a free diet and of tolerance tests, even after the treatment had been discontinued. The renal elimination of sugar continued. This was probably due to a renal factor, which became evident after the hyperglycemia had disappeared.

Intracutaneous Injection and Basal Metabolism.—Crecelius describes experiments which prove that intracutaneous injection, that is, irritation of the sympathetic nervous system, causes changes in the basal metabolism, whereas if the injection is made subcutaneously or intramuscularly there is no such effect. However, not all persons react in the same manner. To what causes it may be ascribed that in some persons there is an increase in the basal metabolism while in others there is a decrease has not been detected as yet. A careful control of the blood pictures gave no explanation, since a certain uniformity was not detectable.

Medizinische Klinik, Berlin

27: 1445-1482 (Oct. 2) 1931. Partial Index

Etiology and Clinical Aspects of Megaduodenum. V. Schmieden and Kraas.—p. 1445.
Expert Testimony on Diabetes. H. Strauss.—p. 1450.
*Membranous Colitis a Disappearing Disease. I. Boas.—p. 1451.
*Apple Diet and Intestinal Flora. W. Schreiber.—p. 1452.
Action of Insulin on Gastric Function and Its Diagnostic and Therapeutic Significance. H. Heller.—p. 1454.
Investigations on Liver Function in Chronic Stage of Epidemic Encephalitis. L. Hess and J. Goldstein.—p. 1461.
Free Organ Transplantation in Animal Experiments. W. Reiprich.—p. 1461.

Membranous Colitis a Disappearing Disease.—Boas points out that membranous colitis, which thirty years ago was one of the most discussed intestinal disorders, in recent years has hardly been mentioned, and he is convinced that the reason for this is the decreased frequency of the disease. In the last decades of the last century, when the incidence of membranous colitis was greatest, the various forms of colitis were usually treated by medicated and especially by astringent enemas. Modern medicine has done away with the habitual enema treatment and particularly with the medicated and astringent enemas, and the author thinks that membranous colitis has decreased in the same ratio as the use of enemas. Another reason why he considers enemas and especially medicated ones as the etiologic factor of membranous colitis is that in the rare cases of membranous colitis which came under his observation in recent years the anamnesis always revealed the habitual use of enemas. When the enemas were discontinued and a dietary treatment was introduced instead, the patients no longer complained of the discharge of membranes. On the basis of past experiences, the author concludes that the cause of the membrane formation is a simple colitis, for the treatment of which unreasonable methods, such as enemas, were prescribed. In this manner a simple mucous colitis developed into a membranous colitis. Since colitis is no longer treated in this manner, and since likewise the use of cathartics has diminished, membranous colitis has almost disappeared.

Apple Diet and Intestinal Flora.—Schreiber shows that in acute and catarrhal intestinal diseases, such as Flexner's dysentery, paratyphoid B and the common dyspepsias, an apple diet causes a change in the intestinal flora, which manifests itself in a considerable increase in the coli bacteria and in a decrease in the pathogenic intestinal flora. At the same time, the clinical manifestations disappear. The virulence of the coli strains neither increases nor changes as the result of the treatment, so that a predisposition for the disease may persist in spite of the clinical cure.

Münchener medizinische Wochenschrift, Munich

78: 1731-1772 (Oct. 9) 1931

Treatment of Chronic Diarrhea. P. Morawitz.—p. 1731.
Investigations on Hypotensive Remedies. J. Eversmann.—p. 1734.
Pathogenesis, Prophylaxis and Therapy of Thrombosis and Thrombophlebitis. Eichenlaub.—p. 1737.
*Intramuscular Calcium Therapy (Calcium Gluconate) in Pulmonary Tuberculosis. E. Undritz.—p. 1741.
Present Status of Cancer Research. Borst.—p. 1745.
Recognition of Poisoning on Corpses. K. Meixner.—p. 1750.
Supplementary Catheter for Trocar Especially in Ascites. S. Munter. —p. 1753.
Proposition for Effective Treatment of Recent Urethral Gonorrhea in Women and for Prevention of Ascending Gonorrhea. A. Sack and R. Amersbach.—p. 1753.
*Pathogenesis and Therapy of Leukorrhea. E. Pulay.—p. 1755.
How Much Latin and Greek the Medical Student Should Know. S. Schwarz.—p. 1755.
Observations on Nicotine Abstinence. H. Czickeli.—p. 1756.

Intramuscular Calcium Therapy in Pulmonary Tuberculosis.—Undritz employed intramuscular injections of calcium gluconate in sixty patients with tuberculosis. The injections are given every other day, alternating into the right and left gluteal muscles. In some cases the injections can be interrupted for some time, and later another series may be given. Intravenous injections of calcium gluconate are advisable in cases of hemorrhage, and a prolonged intramuscular administration may be followed by a series of intravenous injections. The author gives a tabular report, showing the results of the treatment in sixty cases, and a detailed report of three cases. He concludes that intramuscular calcium therapy is advisable in all forms of pulmonary tuberculosis, but in patients with high temperature and poor general condition the injections of calcium gluconate should be postponed until the active manifestations have somewhat subsided and the general condition has been improved by camphor therapy. Especially suitable for parenteral calcium therapy are patients with pleural exudation, and also patients who receive pneumothorax treatment, for in these cases the inhibiting action of calcium on the exudation is of especial value. A prophylactic administration of calcium is advisable from one to two weeks before the pneumothorax is induced. In the summary the author stresses that the calcium administration cannot be considered as a causal therapy and that not all patients are benefited by it. However, he considers it a valuable adjuvant. Its efficacy is due to transmineralization of the organism; that is, it does not form calcium deposits, but, in passing through the organism, it displays pharmacodynamic actions, such as increasing the phagocytosis and checking the inflammation and exudation.

Pathogenesis and Therapy of Leukorrhea.—Pulay's observations indicate that leukorrhea is a manifestation of avitaminosis. Clinically considered, leukorrhea belongs to the group of seborrheal eczema, urticaria, chronic rhinitis and hay of intravenous application the action of the extracts sets in half a minute after completion of the injection. First there is a pressure decrease, which in turn is followed by a marked increase. The intensity of the reaction is likewise dependent on the dose. In estimations of the uterine contractions it is also significant to consider other factors that are of influence. There are "spontaneous" contractions caused by the contrast medium. The woman's excitement during the injection also causes strong contractions, and only after these have passed should the influence of the extract be estimated. The discharge of some of the contrast material and whether the tubes are open or closed is also of influence on the contractions. If large doses of the extract are injected there are certain unpleasant general reactions, such as a feeling of anxiety, severe headache, extreme paleness, enlargement of the pupils and retardation of the pulse. If small doses are given, the general reactions are slight.

Polska Gazeta Lekarska, Lwów

10: 829-844 (Oct. 25) 1931

The Three Internists of Krakow at Close of Nineteenth Century. L. Wachholtz.—p. 829.
*Function of Ovaries After Hysterectomy: Report on Animal Experimentation. K. Bochenski.—p. 832.
*Lymphadenoma and Amyloid Degeneration. J. Kostrzewski and Ciechanowski.—p. 834.
Relation Between Pituitary Body and Female Genital Organs. Seidler. —p. 838.

Function of Ovaries After Hysterectomy.—Bochenski divides the clinical symptoms ascribed to hysterectomy into two groups: those resulting from loss of the organ and those attending retrogressive degeneration of the ovaries. The first group embodies all local symptoms due to anatomic changes in the pelvis, plus removal of the internal secretion of the uterus; the occurrence of an internal secretion in the uterus is not, however, a generally accepted theory. Nine rabbits in which the uterus was removed and oophorectomy was performed six to twelve months later, did not show any macroscopic or microscopic changes in the ovaries as compared with control animals. The symptoms frequently encountered in women, and ascribed to hysterectomy, may be due to preexisting pathologic changes in the ovaries.

Lymphadenoma and Amyloid Degeneration (Hodgkin's Disease).—Kostrzewski and Ciechanowski discuss in detail this rare combination, of which only three cases are on record, two reported by Lichtwitz and one by Matthes. The case under discussion is of particular interest because of insignificant pseudoleukemic changes, general advanced amyloid degeneration and rare possibility of premortal diagnosis. The authors state that (1) the complication of lymphadenoma by amyloid degeneration is proved beyond doubt by this case; (2) there is no relation between the location or extent of the two diseases; (3) the presence of amyloid degeneration does not throw any light on the etiology of pseudoleukemia, and (4) the complication of lymphadenoma by amyloid changes proves that Hodgkin's disease is not a local disorder of the glandular system but a systemic disease with glandular symptoms.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 5191-5260 (Oct. 17) 1931

Idiosyncrasy Toward Cow's Milk. E. Gorter.—p. 5192.
*Transient Benign Coxitis. A. Colaco Belmonte.—p. 5197.
Plague Problem for Europe. J. J. Van Loghem.—p. 5200.
A Special Method for Making Roentgenograms of Cranium and Spinal Column. B. G. Ziedsess des Plantes.—p. 5218.
Hypoplasia Mandibulae with Attacks of Oppression. A. v. Westrienen and T. Jagerink.—p. 5223.
Atrophodermia Vermicularis. H. v. Voornveld-Craciunescu.—p. 5226.

Transient Benign Coxitis.—Belmonte calls attention to a transient, benign infection of the hip joint, apparently little known in the Netherlands but frequently described in foreign journals. Coxitis fugax occurs chiefly in children and sometimes presents peculiarities that make early diagnosis possible. This is especially important for differentiation from tuberculous coxitis with a serious prognosis. Special treatment is not necessary. With rest in bed, the subjective and objective symptoms disappear after a few days or, at the most, a few weeks. The course is entirely favorable. A similar disorder occurs in the knee joint and there appears to be a similar spondylitis.

Bibliotek for Læger, Copenhagen

123: 381-436 (Sept.) 1931

*Cytologic and Metabolic Investigations on Excised Human Thyroids. M. Krogh, A. L. Lindberg and H. Okkels.—p. 381.
Occurrence of Diastase in Blood and Urine of Patients with Acute Infectious Diseases. Cont'd. K. Germer.—p. 405.

Investigations on Excised Human Thyroids.—Krogh and his associates find that cytologic examinations show exophthalmic goiter, unlike simple goiter, to be characterized by cellular hyperactivity, collapse of storage secretion, and proliferation. In patients treated preoperatively with iodine, the storage secretion is frequently restored but the morphologic signs of cellular hyperfunction, particularly the hypertrophy of the Golgi apparatus, are unchanged. The administration in adult male guinea-pigs of dried glands from simple goiters and from successfully treated exophthalmic goiters, in doses based on their iodine content, led to an increase in metabolism nearly equivalent to that caused by the administration of normal guinea-pig thyroids; glands from nontreated exophthalmic goiters and from unsuccessfully treated ones showed a biologic activity definitely below normal.

Svenska Läkaresällskapets Handlingar, Stockholm

57: 237-364, 1931

Some Points of View on Treatment, Especially Institutional Treatment of Neuroses. G. Kahlmeter.—p. 237.
Psychoanalysis and Natural Science. T. Lindner.—p. 246.
*Some Less Common Forms of Torsion of Adnexa. H. Marcus.—p. 249.
"Extra Dextrose" Eliminated After Intravenous and Oral Administration of Glycine to Phlorhizinized Dogs. F. Nord.—p. 274.
Effective Method of Hypnosis. G. Odencrantz.—p. 282.
*Spasmodic Torticollis and Operative Treatment. H. Olivecrona.—p. 284.
Importance of Making Certain Diagnosis in More Prolonged Mental Disorders Together with Danger of Private Care of Mental Disease Without Competent Medical Attention. A. Petrén.—p. 290.
Some Experiences with Active Psychotherapy. C. V. Söderlund.—p. 325.
Some Remarks on Muscular Sense. A. Tamm.—p. 327.
*Genuine and Postencephalitic Narcolepsy: Clinical Investigation. S. Wohlfahrt.—p. 342.
*Scorbutic Ménière's Symptom and Otosclerosis. H. Öhnell.—p. 358.

Some Less Common Forms of Torsion of Adnexa.—Marcus describes three cases of torsion of normal uterine appendages. In the first, in the third month of pregnancy, removal of the twisted adnexa did not affect the pregnancy, and normal delivery occurred at term. Excision was also done in the second case, and in the third the twisted adnexa were untwisted. Analogous cases from the literature are cited. The prognosis was good in all cases.

Spasmodic Torticollis and Operative Treatment.—Olivecrona reports six cases in which operative treatment resulted in marked improvement or in complete recovery. He states that recurrences are seldom to be feared and that, in cases of incomplete recovery, further improvement may be expected during the following years, probably because of the tendency of the condition to spontaneous recovery. He emphasizes that surgical division of the intraspinal portion of the accessory nerve should not be considered sufficient but that peripheral exeresis of the accessory nerve should as a rule be done. He advises against waiting for spontaneous recovery, as it usually takes years before the condition becomes somewhat endurable. When internal treatment, psychotherapy and so on are ineffective after six months, operative treatment is advocated. If, however, torticollis is only a partial phenomenon of some extrapyramidal syndrome, operative treatment is considered only in exceptional cases.

Genuine and Postencephalitic Narcolepsy.—Wohlfahrt reports four cases of true narcolepsy, all in younger men, two cases showing definite signs of disturbances of internal secretion closely resembling hypothyreosis. The administration of thyroid resulted in improvement. In three other cases reported, the symptoms are apparently related to a previous epidemic encephalitis.

Scorbutic Ménière's Symptom and Otosclerosis.—In Öhnell's case of Ménière's symptom in a patient with latent scurvy, the abundant administration of vitamin C resulted in marked improvement. The definite improvement in four other patients with Ménière's symptom after vitamin C had been given is believed to support the assumption that Ménière's symptom is in certain cases due to scurvy.

Variations in the acid-base value of diet have been shown by many [6] to influence the absorption and excretion of calcium and phosphorus in rickets and tetany. Acid-forming diets lacking in vitamin D produced rickets in young white rats; base-forming diets under similar conditions produced a very mild degree of rickets; the former shifted the acid-base mechanism of young rats to the acid side, and base-forming diets to the basic side of equilibrium. "Acid-forming diets inhibit and base-forming diets accelerate the rate of growth, metabolism and activity."

In direct opposition to Hermannsdorfer's "acidifying" diet, others have advised, in cases of hypertension, that an alkaline ash diet be stressed and that fruit be increased to replace cereals and meats. With such varying opinions, it is difficult at present to be dogmatic on these points, when proof is so clearly lacking.

DIETARY COMPONENTS

Let us consider the knowledge of the separate constituents of a diet, taking first the question of carbohydrates. Eskimos in their cold climates have been known to thrive on the low total sugar intake of no more than 30 Gm. a day without exhibiting any unusual tendency to arteriosclerosis or kidney disease. The minimum amount of sugar that a person may take and still retain perfect health has not been ascertained, but it is known that, to effect any appreciable metabolic change in the ordinary patient, an increase of at least 20 Gm. over the accustomed amount is necessary.

Proteins.—Definite advice concerning proteins is difficult to give. It would seem that a high protein ration in a great many instances can be carried very well, and for nephrosis, or for convalescents or growing children, 120 Gm. a day or even more may be indicated. In the treatment of disease the exact amounts are hard to fix; perhaps 120 Gm. a day would be an advisable maximum, and 50 a good minimum. In certain cases, such as nephritis, the amount is sometimes cut below this minimum, especially in nitrogen retention cases this may be wise, but ordinarily if such a low amount is supplied in the diet the patient will draw from his bodily resources any additional amount needed.

Fats.—The regulation of fats goes beyond the ordinary diet, for no minor changes in diet-fat will affect metabolism. Dubois relates that he has made sudden changes of 200 Gm. in fat intake without finding any evidence of change in metabolism. It is well known that the human body can hold in reserve large amounts of fat and draw on them at will.

Weigert [7] found that animals overfed on fat showed an increased resistance to tuberculous infection in contrast to the lessened resistance manifested by animals fed chiefly on carbohydrates. Vogt [8] believed that he corroborated this in children. McCann [9] found that for one unit of heat produced from dextrose there is nearly 30 per cent more carbon dioxide than that gotten from the same energy production from fat; so he advises a diet composed largely of fats up to the limits of digestive capacity as one that will produce the least demand on the function of the damaged lungs.

Calcium.—Through the use of parathyroid extract and viosterol, changes in calcium can be effected, but as yet clinical experiments with these have yielded clarifying results only in the treatment of such definite diseases of calcium metabolism as rickets and tetany and osteomalacia. In tuberculosis the calcium metabolism remains yet to be thoroughly investigated; for the proof of a deficiency of serum calcium and tissue calcium in this disease has not yet been established. Experiments on animals have been made to throw light on this point, and in some cases of tuberculosis the serum calcium has been found to be low, but only in the final stages of the disease. We are equally uninformed about the final effects of calcium ionization. But these experiments with animals have yielded certain positive knowledge: it was found that in calcium-normal blood the amount of calcium is not noticeably increased by an addition of calcium to the diet; and in tuberculous organs the amount of calcium in the food did not determine the calcification; furthermore, the calcification did not seem to have any changes which could be brought into ratio with the tuberculous changes.

Sodium Chloride.—In the past, opinions about mineral salts in a patient's diet have been very contradictory. Reduction in the amount of table salt was once strongly advised to reduce edema of the heart and kidney disease, but recently calcium chloride has been advantageously substituted, especially when it has been combined with mersalyl (salyrgan). In cases of hypertension and edema, the sodium and chloride ions of sodium chloride have alternately been considered the chief contributing causes.

Salts can be deposited in the skin, especially in sodium chloride overfeeding. Keining and Hopf [10] found that certain patients, who were first kept for several days on a salt-free diet and then flooded daily with 20 Gm. of sodium chloride in four doses of 5 Gm. each, showed increased urticaria and eczema, almost without exception. This treatment frequently gave the patients severe shock, so that the salt had to be promptly discontinued. The itching became unbearable. Furthermore, in some of the cases, isotonic salt solution produced wheals at the site of injection. An osmotically equilibrated dextrose solution did not cause any wheals in the same cases. A study of the components of sodium chloride responsible for the irritation showed that the anions were not concerned. The sodium was proved to be responsible for the irritation, so that a cation action was involved. Antagonistic cations, potassium, calcium, magnesium and strontium, administered simultaneously overcame the action of producing wheals. It is known chemically that these cations often act favorably on diverse skin disorders. The cations must stand in perfectly definite quantitative relationship to overcome the irritation or to lessen it, and the relative proportion of the constituents of the salt mixture corresponds closely to the cation relationship of the blood plasma.

Functional disturbances have been observed to follow large subcutaneous or intravenous injections of sodium chloride. Instances are those of increased metabolism with simultaneously diminished respiratory quotient, salt glycosuria and so-called salt fever. Some workers report that the addition of suitable amounts of calcium detoxicates the sodium sufficiently to prevent sodium chloride fever. Also surviving organs as nerve and muscle preparations have been injured and have shown considerable changed irritability in pure isotonic sodium chloride which was removable by adding antagonistic cations. Single celled organisms have been severely injured and their development disturbed their recommendations embrace the whole field of body chemistry and involve a change in the soil in which the tubercle bacillus grows.

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[6] A review of some of the literature may be found in the article by Kugelmass and Samuel (footnote 1).

[7] Weigert, R.: Berl. klin. Wchnschr. **38**, 1907.

[8] Vogt, H.: Therap. Monatsh. **26**: 566, 1912.

[9] McCann, W. S.: Am. Rev. Tuberc. **5**: 870 (Jan.) 1922.

[10] Keining, E., and Hopf, G.: Deutsche med. Wchnschr. **57**: 181 (Jan. 30) 1931.

The essentials of this diet are:

1. The all but complete exclusion of sodium chloride, with a sodium-poor but calcium-rich salt compound being used as a substitute.

2. (*a*) A large percentage of uncooked fresh vegetables in the diet, either in the form of vegetable extracts prepared by pressing uncooked vegetables, such as carrots, beets, spinach and turnips, or in the form of salads with added fruit juices similarly prepared. (*b*) Preparation of cooked vegetables in their own juices in waterless cookers.

3. Marked restriction of meats; Hermannsdorfer and Sauerbruch allow 600 Gm. weekly, Gerson much less. (The table shows the differences.)

Comparison of Suggested Diets for Tuberculous Patients

	Gerson Diet	Hermannsdorfer-Sauerbruch Diet
Proteins..........	About 55 to 67 Gm. daily	About 90 to 120 Gm. daily
80% Animal	Meat....... 100 Gm. weekly	600 Gm. weekly
20% Vegetable	Fish........ 70 Gm. weekly	About the same
	Viscera..... None (sweetbreads, etc.)	Rather freely permitted
	Legumes... None	Permitted
Fats...	About 170 Gm. daily	About 170 Gm. daily
	Cream...... None	About 250 cc.
	Eggs....... Yolks only	Whole egg
Carbohydrates...	Total—250 Gm. carbohydrates given daily	
	Sugar...... 20 Gm. weekly	About the same amount
	Honey...... 50 Gm. weekly	About the same amount
Fluids............	1,400 cc. vegetable juices; fruit juices 600 cc.	Restricted vegetable and fruit juices; about 2½ pints in form of milk, cream, soup, juices, etc.
	Milk........ 250 cc.	About 1,000 cc.
	Soup....... None	
Sodium chloride..	About 1.56 Gm. in food About 1.15 Gm. in juices About 2.7 Gm. of sodium chloride intake daily	
	Ratio of protein to fat to carbohydrate is about 1 to 5.6 to 3.4	Ratio of protein to fat to carbohydrate is about 1.5 to 2.7 to 3.7
Aim..............	Dehydration of tissues and altering body's mineral metabolism. Rich in fat, vitamins and minerals (perhaps protein). Poor in salt and carbohydrate. Vegetables steamed; much raw food given, with cod liver oil with phosphorus, and mineral compound (chiefly calcium). Calories: 21 to 23 calories per pound of body weight; 2,770 or 3,030 if patient weighs 132 pounds (60 Kg.). In Hermannsdorfer diet, calories furnished are 15 per cent by protein, 53 per cent by fat and 32% by carbohydrates.	

4. Restricted water intake, but fairly liberal amounts of freshly expressed juices of fruits and vegetables.

5. Various spices to increase the flavor of the dishes.

6. A mineral compound chiefly of calcium lactate and calcium phosphate, with calcium and magnesium combinations in the form of double salts; strontium, aluminum and silica in colloidal albumin combination, and a cod liver oil, each of these given three times a day.

7. Rich fat and protein, but low carbohydrate elements.

The theories of the mode of action of this diet entail a long and detailed discussion. In this paper I can merely review a few reported conclusions on the value of this diet and add my own impressions resultant from the observation of my own cases and of the cases of others which I was privileged to study in the past two and a half years.

The diet has been both vigorously attacked and enthusiastically supported. Each of the individual dietary factors has been singled out as advantageous by certain workers and just as strongly denounced by others. Some have found that the diet acidifies, others that it alkalizes. Proponents of the diet have aimed at desiccation of tissue through withdrawal of sodium chloride, while others claim a resulting tissue hydration as the cause of extravagant gains in weight.

Dörffel[13] recently found by skin section of treated cutaneous tuberculosis a dehydration of normal and diseased skin as well as a mineral displacement. Potassium was increased, and calcium and magnesium were diminished, while sodium was greatly diminished. These changes were particularly marked in the disease foci.

The withdrawal of table salt has been objected to also on the ground that it is needed for the production of hydrochloric acid of the gastric mucosa, yet actual test has proved the presence of sufficient hydrochloric acid and has shown about 3 Gm. of sodium chloride output in the urine. Its withdrawal has been urged as a measure of healing lupus, by reducing a cutaneous irritant that is stored and excreted by way of the skin. In some cases the diet has been said to increase and in others to decrease the sodium chloride of the blood. Some investigators further report a decrease in the blood calcium level, or an augmented alkali reserve, or high cholesterol values in the blood. The relative percentages of sodium chloride and protein content in the blood have been stressed, and some experimenters have considered sodium chloride as a sort of vitamin, an aid to restriction of protein decomposition. Phosphorus (as given in cod liver oil with phosphorus) has been objected to as dangerous in such dosage to the liver.

Despite the variations in the reported results of separate trials with this diet, many of its most violent opponents have admitted that this therapy is an advance. My own experiences very largely agree with the evaluation of it made by the Hamburg Medical Congress, that the diet is a distinct therapeutic advance as an aid generally effective in the treatment of lupus vulgaris, and occasionally in bone and joint tuberculosis, but that its value in other forms, more particularly pulmonary tuberculosis, is yet to be determined. I have discerned in it an alterative therapy. Symptomatic improvements, even in pulmonary tuberculosis, have been common, but the effective factor, even the psychotherapeutic one, cannot be evaluated here. However, the diet seems directly responsible for many relieved cases of functional disturbances attendant on pulmonary tuberculosis, especially with chronic constipation or gastric hyperacidity. And tuberculosis with the rare toxic nephroses or essential hypertonia or vasoneuroses has been helped by it.

The leading authorities report favorable effects from this diet in the treatment of lupus vulgaris: retrogression of swelling, flattening of the foci, and absorption and disappearance of the individual nodules. Lupus of the mucous membrane reacts even better than lupus of the skin. Foci of the nasal mucosa, the hard palate, the pharynx and the larynx have been benefited; the lupus foci about the gums of the teeth have been the most resistant. Noteworthy influence on exudative processes is clearly shown; the dry squamous forms react less favorably. The best results are seen when light treatment by general exposure in minimal doses is added. My conclusions are arrived at from the bed, new bone may bridge the gap between the cut ends and form a smooth rib that cannot be differentiated from normal rib. Bridges of bone often join two or more ribs.

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[13] Dörffel, J.: Deutsche med. Wchnschr. **57**: 268 (Feb. 13) 1931.

Linear shadows resembling those seen in the lung at the site of an abscess and similar to some types of tuberculous fibrosis may develop anteriorly along shreds of periosteum left after resection. They are occasionally difficult to differentiate even in stereoscopic films from pulmonary changes. Usually, however, the markings due to periosteal regeneration pass downward almost at right angles to the end of the resected ribs, whereas pulmonary fibrosis due to inflammatory change develops in the direction of the spread of the bronchial branches. In the apical portion of the lungs this is upward and lateral, and in the middle and lower portions downward and lateral, in any case being more nearly parallel to the ribs or at a less acute angle to them than the linear markings of periosteal regeneration.

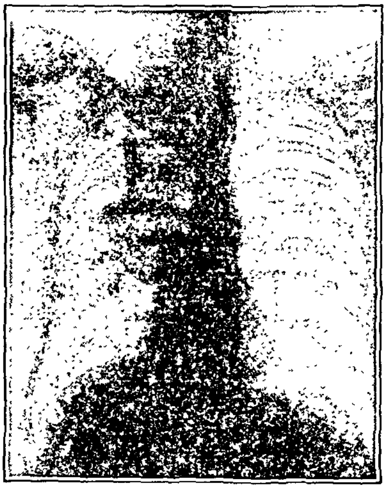

Fig. 1.—Indentation of the lung by gauze packed against the pleura in a man, aged 23, Jan. 30, 1930: Abscess of the right upper lobe, resection anteriorly one week earlier; deformity slight; swelling in the soft tissues.

When the wound is packed with plain gauze at the first stage, the shadows of the lung are not altered unless, as is the case in deep-seated abscesses, a strip of sound lung lies between the abscess and the pleura. The normal lung tissue overlying a deeply seated abscess is compressed by the packing, and a dense crescentic shadow forms at the perimeter of the lung with its concavity peripheral and convexity central (fig. 2). Iodoform gauze used as packing casts a distinct shadow.

It is important for the roentgenologist to know the operative procedure employed, for compression of a lower lobe may simulate an interlobar empyema. Figure 2 illustrates the roentgenographic appearance of a chest in which lobectomy was contemplated for bronchiectasis secondary to pulmonary abscess. A rubber dam placed between the under surface of the lower lobe and the diaphragm and packed with gauze has compressed the lung. The airless compressed lower lobe casts a shadow which might be mistaken for an interlobar empyema.

2. *The character of the pleural changes.* Both preoperative and postoperative changes in the pleura influence the roentgenographic appearance. Edema of the pleura or fluid in the pleural cavity, when present before operation, may obscure the abscess and normal lung and, when occurring postoperatively, hide the rib and pulmonary changes.

Preoperative pleural edema sometimes simulates the density of empyema and may be mistaken for it. It occurs complicating peripherally located abscesses and produces a homogeneous shadow resembling that of fluid. A diagnosis of fluid in the pleural cavity was made in two instances in this series and at operation only a markedly thickened and edematous pleura was found without free fluid (fig. 3).

The commonest roentgenographic finding immediately after operation is an increase in the size of the shadow of the diseased area accompanied by a slight increase in density (fig. 4). It is due to swelling of the pleura secondary to the operation, and is particularly well defined over the axillary border of the chest on the anteroposterior roentgenograms. Return to normal is usually rapid and follows absorption of the edema, though occasionally marked pleural edema may leave a residual thickening persistent for months.

Fluid occasionally develops in the pleura after operation. It is practically always due to extension of the disease to the pleura and is usually independent of the operative procedure. In most instances a pyopneumothorax develops and presents the classic signs of the condition, displacement of the heart and a horizontal fluid level on roentgenograms made with the patient erect. Encapsulated collections of fluid sometimes form, and interlobar collections are occasionally seen. Drainage leads to regression of their shadows.

There is nothing in the appearance of empyema developing postoperatively to set it apart from empyema occurring independently of operation. It usually masks the underlying pulmonary condition. Drainage lessens the density of the shadow, but, even after it has been done, it may be impossible to determine which of the remaining shadows are due to pulmonary disease and which arise from the pleural changes.

3. *The postoperative course of the disease and time after operation that the roentgenogram is made.* Many postoperative alterations are due to the disease and not to the operation. Extension of the lesion may take place, or new abscesses may develop. Their shadows depend on the extent and character of the new changes. Occasionally, small inflammatory foci develop in sound lung tissue and disappear by absorption without actual abscess formation.

In uncomplicated abscess going on to recovery, a gradual diminution in the density of the markings at the site of the abscess takes place. This begins at the periphery and progresses to the center. Usually there is left only an annular scar of fibrous tissue or radiating linear densities taking the direction of the vessels and bronchi. In time these ordinarily disappear and leave a normal pulmonary parenchyma. In the upper lobe fibrous tissue strands course upward and outward, in the lower lobe downward and outward. Scars in the upper lobes may be diagnosed as tuberculous in origin unless one is familiar with the patient's history. Lower lobe scars are similar to the shadows of bronchiectasis; indeed, they are sometimes due to

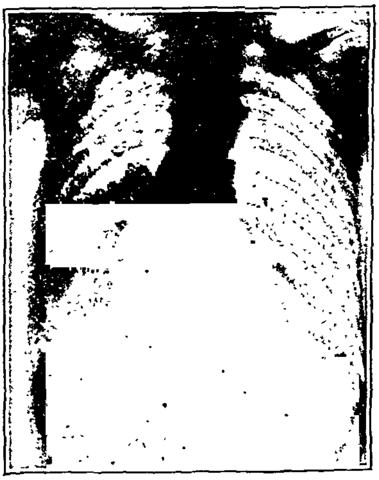

Fig. 2.—Compression of the lower lobe by a pack placed between it and the diaphragm simulating an interlobar collection of fluid, in a man, aged 44.

pleural reaction. Regression of the abnormal shadows in both the lungs and the pleura takes place gradually, and usually the shadows finally disappear entirely.

Bronchopulmonary fistulas sometimes remain after external drainage of a pulmonary abscess. Their presence cannot be detected by direct roentgenography. They may be outlined by injection through the skin opening of an opaque medium such as iodized poppyseed oil. Bronchoscopic pneumonography is frequently helpful in determining the relation of the sinus to the bronchial tree of the lobe involved.

The pulmonary changes depend on the site and size of the abscess, on the condition of the pleura, and on the time elapsed after operation. When peripherally located, a unilocular abscess unaccompanied by pleural complications will lessen in density and extent immediately after evacuation, but if it has a well organized wall an annular shadow will persist unless the wall is excised at operation. An abscess surrounded by a zone of increased density due to indurated lung undergoes peripheral clearing which finally reaches the center of the area. Similar gradual regression follows evacuation of multilocular abscess with an encompassing pneumonitis, but return to normal takes longer and may be followed by a persistent scar of fibrous tissue resembling, when in the upper lobes, tuberculous fibrosis, and, when in the lower, bronchiectasis.

Abscess associated with pleural disease requires a longer time for complete disappearance of the abnormal roentgenographic shadows than uncomplicated abscess.

Change in the position of the thoracic viscera plays but a minor rôle in the postoperative roentgenographic appearance of pulmonary abscess. It is not the prominent feature of abscess that it is of such intrathoracic conditions as bronchial new growth, bronchial foreign body, postoperative pulmonary collapse or pleural effusion. The position of the diaphragm is altered more than that of the heart, trachea or other mediastinal structures; this, too, contrasts with the observations in other conditions. In empyema and obstructive emphysema displacement of the heart, aorta and trachea away from the affected side is pronounced; and in postoperative collapse or atelectasis secondary to bronchial foreign body or new growth, drawing of these structures toward the diseased side is characteristic. The position of the diaphragm in these conditions is often an unimportant diagnostic point; but in roentgenograms made after rib resection for pulmonary abscess the altered position of the diaphragm may be the only evidence of displacement, the heart, trachea and mediastinum maintaining their normal relations (fig. 6).

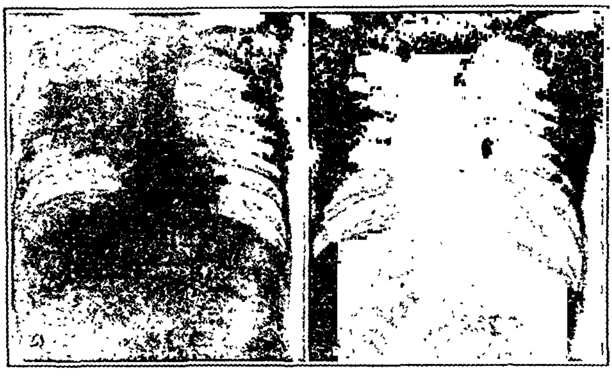

Fig. 5.—Abscess of the right upper lobe complicated by empyema, in a boy, aged 8 years: *A*, before resection for abscess; deformity of the eighth rib posteriorly resected for an earlier empyema is apparent. *B*, thirty-three months after resection. The right half of the chest is less well developed than the left. Dense bridges of bone unite the resected ends, but there is still retraction of the soft tissues. A small scar remains in the lung.

This study has demonstrated that the positional change of the diaphragm after rib resection is directly proportional to the extent of the accompanying pleural changes. In patients without pleural complications, no change takes place. Mild reaction in the pleura causes the half of the diaphragm on the diseased side to rise slightly (fig. 4 *B*) and to remain elevated until the reaction subsides. Extensive pleural thickening or the development of an empyema always leads to marked elevation of the diaphragm on postoperative roentgenograms. After subsidence of the edema or evacuation of the fluid, this persists for a long time; in fact, the affected half of the diaphragm may remain above the normal long after the scar in the lung has disappeared. This persistent elevation is secondary, I believe, to fibrous tissue formed at the site of the abscess. After the empyema is drained or the edema absorbed, the lung is prevented from fully expanding by the scar, and the diaphragm remains elevated. The mechanism of the diaphragmatic elevation differs from that of the elevation seen in extensive fibrotic tuberculous lesions in that the pulmonary fibrosis in tuberculosis is directly responsible for the contraction of the lung, and elevation of the diaphragm follows without intermediary pleural changes. Pulmonary fibrosis is not an outstanding roentgenographic characteristic of pulmonary abscess postoperatively. It is pronounced only in those cases in which there have been marked changes in the pleura. Similarly, and probably for the same reason, bronchiectatic changes occur postoperatively more commonly in abscess complicated by pleural disease than in uncomplicated cases.

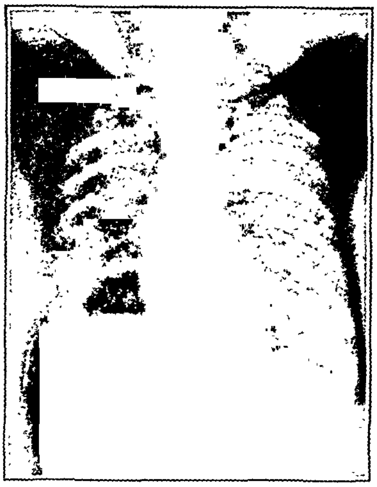

Fig. 6.—Retraction of the subcutaneous tissues five months after resection in the midaxillary line in a man, aged 33; abscess of the middle lobe; regeneration of ribs, residual thickening of the pleura, and scar in the lung at the site of the abscess. Note elevation of the diaphragm. Empyema, probably interlobar, complicated this abscess.

SUMMARY

1. In the study of a series of twenty-three patients, on whom rib resection was done for drainage of pulmonary abscess, it appears that the postoperative roentgenographic appearance of the chest is determined principally by the number and portion of the ribs resected, the character of the pleural changes, and the postoperative course of the disease.

2. Changes in the postoperative roentgenogram are structural and positional.

(*a*) Structural changes involve the skin, subcutaneous tissues, pleura and lungs and are influenced by the type of operation, the size and location of the abscess, the character of pleural complications and the postoperative course.

Since empyemas vary so greatly etiologically, structurally and clinically, it follows that no one method is universally suitable. The treatment to be most effective must be individualized.

Drainage may be accomplished by the so-called closed or open method, with or without irrigation, of which the various drainage devices, operative procedures, and irrigating solutions periodically rediscovered and advocated are simply variations.

After decades of discussion there persist the most divergent and even diametrically opposed views as to the relative merits of the closed and open method, and as to the usefulness of irrigation. Their attempted evaluation has been based chiefly on a comparison of statistics, in which sufficient account has not been taken of the many variable factors that influence the results of any given method. The age and general condition of the patient, the virulence of the infection, and the nature and severity of the underlying disease, as well as treatment, influence mortality. All play a part in the development of complications, which are so frequently the cause of death.

Chronicity may be attributable to the method as such, but also to the failure to carry out the principles involved. If an empyema cavity is kept empty of pus all the time, there will be a minimum of chronicity; while if drainage is not efficient, there will be a relatively large incidence of chronicity, regardless of the method of treatment. Duration of convalescence based on incomparable standards is used as a criterion in comparative studies of methods of treatment. A sinus may persist for months after the patient is discharged and may represent a persistent cavity. The degree of loss of function and of deformity should enter into the evaluation of any method.

Improvement of results and an increasing approachment of opinion regarding methods would seem to lie not so much in the study of inconclusive and incomparable statistics as in the direction of more attention to fundamental principles and more individualization of treatment.

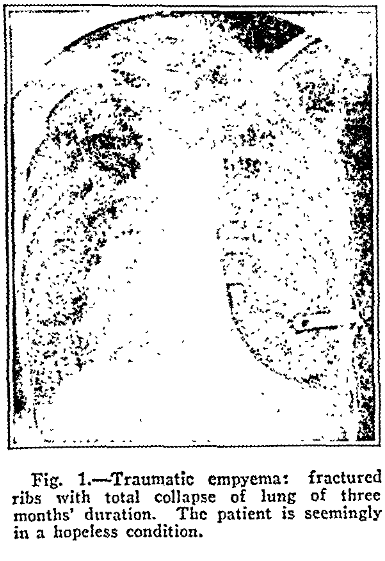

Fig. 1.—Traumatic empyema: fractured ribs with total collapse of lung of three months' duration. The patient is seemingly in a hopeless condition.

The fundamentals of treatment would seem to be drainage without embarrassment of respiration and circulation, reexpansion of the lung and general supportive measures.

The principle of drainage, kept adequate until the cavity was obliterated, established by Hippocrates, and more or less followed up to the time of the Arabian ascendency in medicine, was then, with few exceptions, discarded, up to a half century ago;[1] it is even now not sufficiently appreciated, as evidenced by the discussions as to when a tube should be removed and by the constant succession of chronic cases from insufficient drainage.

Reexpansion of the lung is essential to the normal obliteration of the empyema cavity. The chief mechanism by which it occurs in the presence of an open pneumothorax was explained by Weissgerber,[2] in 1879, as dependent on the paradoxical expansion of the collapsed lung by positive intrabronchial pressure, incident to forced expiratory effort, as in straining or coughing, by which the lung edge may be forced even into the wound. During this oft repeated expiratory expansion the lung gradually becomes adherent to the chest wall, first at the points of firmest and most prolonged contact. Its further expansion is favored by the same mechanism, and by the constantly progressing scar tissue formation and contraction along the angles of contact between visceral and parietal pleura, as pointed out by Roser[3] in 1878. These mechanisms may fail, and the lung then remains collapsed, unless its expansion is assisted by the development of a temporary or continuous, greater or lesser degree of negative tension in the cavity.

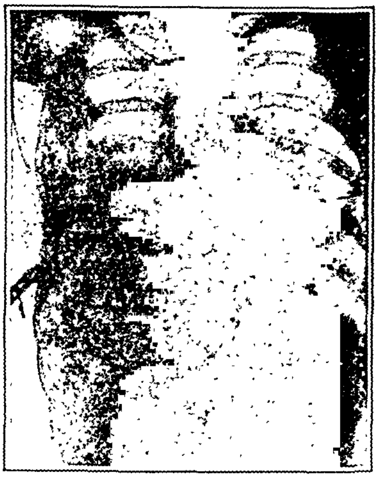

Fig. 2.—Same patient as in figure 1, showing degree of reexpansion of the lungs following irrigation with surgical solution of chlorinated soda through draining sinus.

The possible unfavorable influence of open pneumothorax in the treatment of acute empyema was recognized by the ancients. The simplest unpremeditated device for producing a negative tension in the cavity was the pus soaked dressing, around which air escaped during expiration, but which in part prevented its reentry during inspiration. This principle of the valve, more perfectly applied, is represented in the various skin muscle flaps, which are shaped at drainage operation, and in the numerous mechanical drainage devices that are now in use. Forced respiration by the use of the Wolf blow bottles and by other devices, including carbon dioxide rebreathing,[4] enhance their effectiveness as well as promoting reinflation of collapsed alveoli.

Valve action plus active suction is embodied in the siphon drainage of Buelau,[5] by which suction is kept up to the weight of the column of pus filling the rubber tube, inserted into the cavity through a more or less air tight stab wound. The valve action is provided by keeping the open end of the tube under water. The suction theoretically amounts to the length of the column in terms of water pressure, i. e., from 30 to 40 cm., but it must be recognized that the resistance of thick, more or less sticky, pus against the tube wall greatly reduces this pressure.

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[1] A comprehensive historical review may be found in Hedblom, C. A.: The Treatment of Chronic Empyema, Ann. Surg. **72**: 289-326 (Sept.) 1920.

[2] Weissgerber, P.: Wie entfaltet sich nach der Operation des Empyems die conprimerte Lunge bei offenstehender Pleura Höhle, Berl. klin. Wchnschr. **16**: 107-108, 1879.

[3] Roser, W.: Ueber die Operation des Empyems, Berl. klin. Wchnschr., 1878, p. 682.

[4] Churchill, E. D.: The Reexpansion of the Lung in Empyema with Notes Regarding the Mechanical Effects of Carbon Dioxide Inhalation, Boston M. & S. J. **194**: 623 (April 8) 1926.

[5] Buelau, G.: Für die Heber-Drainage bei Behandlung des Empyems, Ztschr. f. klin. Med. **18**: 31-45, 1890-1891.

One important difference between this method and simple aspiration is that the pus may be practically all removed. What the influences of the air may be seems uncertain. I have used the method in tuberculous empyema but the pus has regularly reaccumulated for many months until thoracoplasty was performed.

Closed drainage can be made to approximate simple aspiration as an operative procedure. It can easily be done in the patient's room. The technic which I have followed with much satisfaction for twelve years is essentially as follows: Under local anesthesia a catheter (number 22 F.) is inserted through an ordinary bladder trocar and cannula, which it just fits, and fastened in place essentially after the method described by Mozingo,[15] and recently by Alexander.[16] Pus is then aspirated by means of a 60 or 120 cc. glass syringe. If the patient is an adult and the cavity is large, from 200 to 300 cc. is drawn off. The tube is then clamped and the piston of the syringe is removed. Saline solution in amount a little less than the amount of pus evacuated is then introduced by gravity, through the barrel of the syringe used as a funnel. The same amount of the mixture of pus and saline solution is now aspirated, a syringeful being first reinjected a few times to bring about a complete mixture. The process is repeated until the solution returns fairly clear. The catheter is now clamped off or attached to a tube after the method of Buelau. The process is repeated every two hours during the day and once or twice at night while the patient is toxic and the cavity is large. The nightly irrigations may then be omitted, but continuing it insures better drainage. Often it can be carried out without awakening the patient from sleep.

If there is no evidence of a bronchial fistula, e. g., no cough and sputum and no irritation during the irrigation with saline solution, surgical solution of chlorinated soda is substituted after the first two or three irrigations. If there is any doubt, the saline solution can be colored with methylene blue (methylthionine chloride U. S. P.). If the patient coughs up colored sputum, the presence of the fistula is proved, in which case only saline or nonirritating, weak, antiseptic solutions are used as long as there is evidence of its persistence.

In infants a smaller catheter is used and only small amounts of pus are withdrawn before saline solution is substituted. In this way there is no appreciable fluctuation in intrathoracic pressure.

Sometimes fibrin plugs the cathether during the first few irrigations. In my experience this has never occurred until some of the pus has been withdrawn. It is then permissible to introduce an equal volume of surgical solution of chlorinated soda for the purpose of softening up the fibrin. After this procedure has been repeated for a few two hour intervals, the fibrin is dissolved. Introduction of acid pepsin for the same purpose is recommended by Hermannsdorfer[17] and

By this simple method the cavity is not only kept emptied of pus but its walls are washed mechanically clean, fibrin and necrotic material are dissolved, and, if surgical solution of chlorinated soda or other bactericidal solutions are used, the surfaces are at least partly sterilized. The lung is kept partly expanded from the others. onset of treatment. The tube remains practically air tight for from one to three weeks or more. If air is excluded from the tube for such a period, which is an easy matter, the degree of expansion of the lung is controlled by the amount of fluid left in the cavity at each irrigation. By filling it to capacity once a day, by a few centimeters of gravity pressure, pocketing of pus is prevented. It is important to observe this precaution, especially during the first week, when dealing with very large primary cavities. Later, the same procedure serves to measure the progressive obliteration of the cavity. After the first few sittings the irrigations can be entrusted to a nurse, with the simple precaution never to inject the solution but always to use gravity in filling the cavity, and to discontinue the irrigation if the patient coughs unusually, or tastes the solution, or if the return becomes blood streaked. By the observance of these simple precautions I have never seen any untoward results from bronchial irritation, "pleural reflex," air embolus or sudden collapse, occasionally mentioned in the literature.

Irrigation is continued until the cavity is obliterated or until there is no further decrease in the size of the cavity. At such a stage the patient is practically always in good condition and the resection of a rib, with or without removal of the parietal pleura for open drainage, is simple and safe. If the cavity is of 50 cc. or more capacity, a complete removal of the roof of the cavity shortens convalescence. It is emphasized that the closed drainage is not done for the purpose of avoiding rib resection but to safeguard the life of critically ill patients, to give the less ill patient the benefit of what may well be termed the "de luxe" treatment, and to prevent the development of a large chronic cavity.

Cellulitis of the chest wall along the catheter sometimes develops, especially in patients who have a virulent infection, such as from mixed anaerobic and pyogenic organisms from the rupture of a lung abscess, and who cough a good deal. Such infection calls for open drainage, and for wide incision of the cellulitis as when occurring elsewhere.

Other varieties of the closed method, based on the procedure of Buelau and of Perthes are on the same principle as that described except that they do not include irrigation. Hart's[18] ingenious method included tidal irrigation, brought about by the respiratory fluctuating intrapleural pressure. Whether or not a rib is resected is of no particular consequence, except that leakage around the tube is perhaps more apt to develop.

In the milder types of acute empyema, in adults in good general condition, the choice between an open or a closed method of treatment depends largely on the size of the empyema cavity. If it is of large capacity, particularly if there is a massive collapse of the lung, the closed method practically assures as much reinflation of the lung as its expansibility will allow, and the antiseptic solution treatment will prevent pocketing and secondary infection, and will hasten recovery.

If the cavity is small and encapsulated, healing will occur by any method that provides and maintains adequate drainage until the cavity is obliterated.

Empyemas with bronchial fistulas are best suited for the closed method. If the fistula is small, irrigation and some degree of negative intrapleural tension can be maintained. If the fistula is large, open drainage

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15. Mozingo, A. E.: The Surgical Treatment of Empyema by a Closed Method, Am. J. M. Sc. **161**: 676 (May) 1921.

16. Alexander, John: Air-Tight Intercostal Drainage of Acute Empyema, J. A. M. A. **92**: 1818-1821 (June 1) 1929.

17. Hermannsdorfer, A.: Die Verflüssigung Pleuraempyeme durch Pepsin salzsäure als Hilfs mittel der Buelauschen Heberdrainage Behandlung, München. med. Wchnschr. **70**: 1219 (Sept. 28) 1923.

18. Hart, Deryl: Empyema, Acute, Chronic and Tuberculous: Report of Fifty Cases Treated by Tidal Irrigation and Suction, J. A. M. A. **93**: 1724-1729 (Nov. 30) 1929.

TUBERCULOUS EMPYEMA

An empyema is considered to be tuberculous if it develops primarily without a preceding acute infection. A history of preceding pleurisy with effusion should always suggest the possibility that a later empyema is tuberculous, even if it follows an acute infection.[22] If pyogenic organisms cannot be demonstrated in aspirated pus by smear or culture, it should be treated as of tuberculous origin. Occasionally tubercle bacilli can be demonstrated by smear, and often by culture or guinea-pig inoculation; but the latter procedures require too much time to be of much practical value from the standpoint of immediate treatment.

Differentiation of a sterile tuberculous empyema from one of pyogenic origin is of the first importance to treatment, in that a sterile tuberculous empyema should not be subjected to open drainage. To do so induces a secondary pyogenic infection, which endangers the patient's life and inevitably leads to chronicity. If the pleura is tuberculous it has little resistance to pyogenic infection and little healing power. In such cases only the most radical thoracoplastic procedures will bring about healing.

A sterile tuberculous empyema of idiopathic origin, and without clinical evidence of pulmonary tuberculosis, is treated on diametrically opposite principles to those governing treatment of a sterile tuberculous empyema with active pulmonary tuberculosis on the same side. In the first instance an effort is made to obliterate the cavity by securing reexpansion of the lung. In the latter, treatment is directed to keeping the tuberculous lung collapsed.

The treatment of a sterile tuberculous empyema of the idiopathic type is aspiration of the pus, filtered air being substituted in such an amount that the intrapleural pressure is about atmospheric. The procedure is repeated at intervals as the pus reaccumulates. The pneumothorax usually lessens the purulent secretions. Absorption of the air into the blood stream creates a less than atmospheric intrapleural tension, which tends to reexpand the lung. If pus continues to reaccumulate after from six months to a year of such treatment, and the lung shows no evidence of extensive reexpansion, a graded posterior extrapleural thoracoplasty is indicated. Prolonged absorption of pus usually results sooner or later in irreparable damage of the heart, of the kidneys, or both, and may produce extensive amyloidosis.

Sterile tuberculous empyema with associated active pulmonary tuberculosis is treated similarly to the idiopathic type, except that an attempt is made to prevent expansion of the diseased lung by keeping the pneumothorax pressure atmospheric or positive. If pus reaccumulates indefinitely it constitutes the same indication for thoracoplasty as in the case of the idiopathic type. The age, the condition of the patient, and the presence and the type of the pulmonary or other tuberculous process naturally may constitute contraindications to thoracoplasty.

An undrained tuberculous empyema may be secondarily infected by a bronchial fistula or by the lymph or blood stream. Presumptive evidence of an associated tuberculous pleuritis, in case pyogenic organisms are demonstrated in the smear or on culture, rests on the history of previous idiopathic pleurisy with effusion, or on the presence of an obvious tuberculous process in the lung or elsewhere. If the bacteria are few in number and the clinical symptoms mild, treatment should be the same as for the sterile tuberculous form. If there are large numbers of organisms, particularly streptococci, and if there are marked symptoms of sepsis, drainage must be instituted as in the pyogenic form, except that an erosive solution such as surgical solution of chlorinated soda or that of gentian violet must not be used if there is evidence of a pulmonary tuberculosis. If the pyogenic infection can be cleared up, the case is then treated as the sterile tuberculosis.

A tuberculous empyema secondarily infected by injudicious drainage may present the same presumptive evidence of tuberculosis as the undrained type. Its preliminary treatment is that of the chronic pyogenic type; its final treatment as outlined for the tuberculous. If there is no pulmonary tuberculosis it is desirable to bring about reexpansion of the lung; if there is pulmonary tuberculosis on the same side a thoracoplasty is usually indicated.

SUMMARY

1. Empyema may be of pyogenic or tuberculous origin. Differentiation depends essentially on examination of smear and culture for pyogenic organisms. Treatment differs radically.

2. The mortality rate and the incidence of chronicity in acute empyema depend not only on treatment but also on the type and virulence of infection, on the pathologic anatomy, age and general condition of the patient, and on the nature and gravity of the primary infection, of which it is almost always a complication. Comparative statistics of results of different methods of treatment that do not take these variable factors into account are inconclusive and misleading.

3. The fundamental principle of treatment is drainage, instituted early, by a method that will not embarrass respiration and circulation, and maintained until the cavity is obliterated, plus general supportive measures.

4. In the early stages of an acute empyema, before the lung has become adherent or the mediastinum has stiffened, the two pleural cavities function as one. Open drainage then lowers the respiratory function of the other lung. If the vital respiratory capacity is reduced by a coincident pneumonia and toxemia or other cause, or if the patient is an infant who normally always has a low vital capacity, such open drainage always adds to the respiratory load, often to a degree beyond the patient's compensatory reserve.

5. Closed drainage not only does not interfere with respiratory capacity but improves it. It is therefore the method of choice in all early, acute cases, in severely ill patients and in infants. Irrigation with antiseptic solutions makes possible the removal of all the pus without changing the intrathoracic pressure relationships and is bactericidal.

6. Ordinary rib resection and pus drainage is the alternative method, after the lung has become fixed by adhesions, and is the method of choice in cases with large bronchial fistulas.

7. Closed drainage and irrigation with surgical solution of chlorinated soda in chronic cases usually reduces the size of the cavity to a marked degree, improves the patient's condition and prepares the field for operation.

8. Residual empyema cavities may be obliterated by plastic operations varying according to their size, shape and position. Cavities involving the whole pleural cavity can be obliterated with minimal operative risk [illegible] terior and later extrapleural thora- [illegible] by the removal of the thickened pleura over the residual cavity.

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[22] Hedblom, C. A.: Diagnosis and Treatment of Tuberculous Empyema, Surg., Gynec. & Obst. 34: 445-465 (April) 1922.

during the night. Properly carried out, it does not tire or irritate the patient. Often he will not be aroused from sleep. If, for any reason, this routine cannot be carried out adequately it will be better for the patient to have wide open gravity drainage as soon as the critical stage of his illness is past. I cannot quite agree with Dr. Alexander that two tubes are necessary. In fact, in my experience a secondary tube has never been necessary. If pus is aspirated first, and if the amount of irrigating solution allowed to flow in is always less than the amount of pus removed, and if air is not admitted, there can be no dilating effect on the cavity. The result, in fact, is to the contrary. In my paper I have referred to Dr. Danna's method. Aspirating the pus and replacement with air is, of course, a recognized method of treatment of sterile tuberculous empyema. Just how effective this method will prove to be in dealing with pyogenic empyema, experience will have to determine. Dr. Danna's results certainly have been good. The method may prove of great value in empyema due to infection of low virulence.

ONYCHOLYSIS

AN INDUSTRIAL DERMATOSIS *

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Very little has been written in regard to separation of the fingernails from the nailbeds. Practically nothing has been recorded in regard to such a condition, onycholysis, being related to the industries. Since 1928, I have been called on to determine the industrial status of five cases in which patients claimed that their fingernails had separated in whole or part from the nail beds as a result of their particular occupations. An investigation disclosed that their allegations were correct. The cases all became compensable and, hence, of interest to industrial physicians and insurance companies.

A thorough search of all the available literature failed to disclose any similar cases. Any claim to priority of description of such cases was shattered, however, when in a personal interview Oppenheim told me that he had reported several similar cases in 1910. Although there are some dissimilar features in his cases, there would seem to be no question but that they belong in the same category as mine.

REVIEW OF THE LITERATURE

Oppenheim's cases were all presented before the Vienna Dermatologic Society during November, 1909.[1]

Case 1.—A woman, aged 50, a housewife, with no history of dystrophies of the nails in her family, first noted a separation of her fingernail eight or nine years previously. She believed that her trouble was caused by doing laundry work. All her nails, with the exception of that of the left thumb, showed a separation of the nail from the nailbed in various degrees (fig. 1). This separation was limited by a semilunar line with its convexity proximal. The separation was an extension proximally of the normal separation between the nail and the end of the finger. The nail itself was unchanged in color and luster. The nail lunula and the surrounding skin were normal and the skin of the nailbed was smooth. The separation had never reached the lunula. The toenails were normal.

Case 2.—A woman, aged 35, a housewife, noticed a loosening of her fingernails five years previously, following considerable laundry work. This separation occurred without producing any symptoms. The nails of the second, fourth and fifth right fingers and of the third left finger were involved. The changes were exactly the same as seen in case 1.

Case 3.—A woman, aged 23, a housewife, observed an asymptomatic separation of her fingernails one year previously, which she attributed to laundry work. All the nails of her right hand and those of the third and fourth left fingers were involved. The changes in the nails were the same as in the other two patients.

Oppenheim's patients were all women domestically engaged in laundry work. Their afflictions began gradually without subjective symptoms and lasted for years. Their toenails were all normal.

The author felt that the separation was brought about by laundering with hot water and soda, although the question remained open whether the chemical or the mechanical insults were to be given the greater rôle or whether they work in conjunction. He showed that trauma was applied to the free ends of the nails by their part in rubbing the clothes over the washboard and in wringing the clothes dry. Those fingers were most affected which suffered the most trauma. The chemical factor of the water and soda macerating the tissues under the nails would render them more liable to separation by the mechanical factor.

Case 4.[2]—A woman stated that she used a washing powder called "Persil" for laundering. About one week later small vesicles appeared under the nails, which loosened to the extent shown in figure 2. Four years later the nails had regrown, with the exception of the one on the third finger of the right hand.

AUTHOR'S CASES

Case 1.—Mrs. Anna J., aged 34, began washing paste from labeled catsup bottles, May 14, 1928. She had not been engaged in this type of work previously. It necessitated intermittent submerging of her hands in water throughout the day. On the second day she noticed blue black spots appearing under the nails of several of her fingers (fig. 3). These dark areas spread rapidly and in two days had involved nearly the whole of the nailbeds of all her nails. This process was remarkably free from pain. May 18, four days after beginning bottle washing, she was forced to lie off and consult the plant physician. He found all her nails loosened from the nailbeds. There was a slight serosanguineous discharge from under the nails. There was no evidence of paronychia, nor was there any pus under the nails. The nailbeds were not acutely inflamed. Within three weeks the nails had entirely separated from the

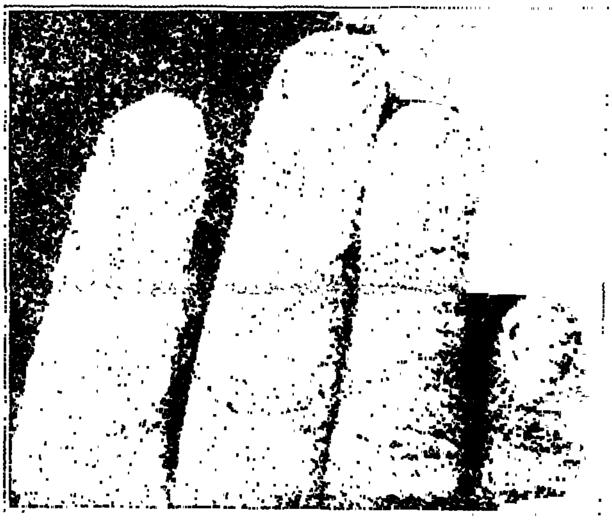

Fig. 1.—Oppenheim's case of onycholysis in a washerwoman.

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* Read before the Section on Dermatology and Syphilology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Oppenheim, M.: Ueber eine eigene Art der Nägelablösung bei Wascherinnen, Wien. Arb. d. Geb. d. soz. Med., Vienna & Leipzig, 1910.

[2] An unpublished case, reported by courtesy of Professor Arzt and Docent Fuhs and Matras of Vienna.

trouble occurred in healthy young women who were engaged in washing paste off of catsup bottles which had just been labeled. The catsup bottles were first washed, then filled with catsup and capped. The catsup was then washed off and the bottles were dried. Labels were then pasted on. All the work up to this point was done by groups of girls other than the bottle washers. None of these groups suffered from nail disorders. The bottles, covered with paste, were delivered to the bottle washers on a conveyor and were dumped into wooden wash tubs filled with lukewarm city water to which no chemicals had been added. The bottle washers wore no gloves and used no soap. They were provided with sponges with which they removed the paste. Their hands remained submerged in water a large part of the time.

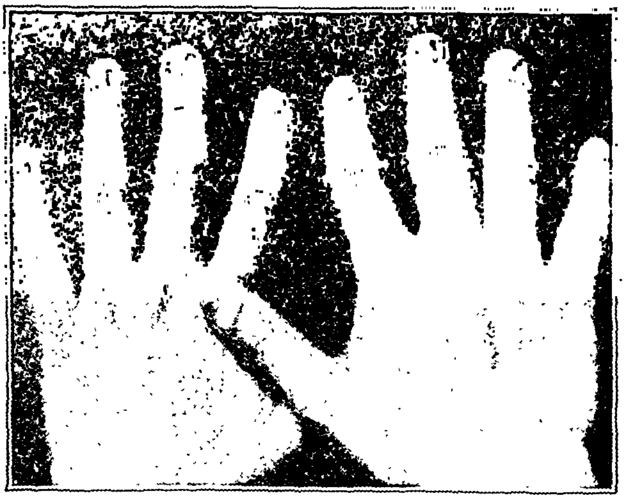
Fig. 4.—Onycholysis in author's second patient.

Possible causative factors which we considered were as follows:

1. Could the catsup have been at fault? This possibility would seem to be eliminated by the freedom of the groups who came in contact with the catsup and by the fact that it was thoroughly washed off the bottles before they were sent to the bottle washers.

2. Could the paste be blamed? The group of girls whose hands were in the paste all day did not suffer from nail disorders.

3. Could the chemicals on the labels be the cause? The label manufacturer informed us that no similar cases had occurred in his plant.

4. Could the chemicals in the water be the cause? No soaps, lyes or chemicals were added to the water. Only 0.06 part per million of chlorine was added to the water supply at its source. As this would have been neutralized in the city mains it could be of no significance.

5. Was there irritation from the sponges? We were unable to secure much information in regard to sponges, but as the ones provided were old and frequently washed we did not believe that they could be at fault.

6. Could maceration of the tissues which bind the nail to the nailbed occur by long continued immersion of the hands in water? This is self explanatory and, I believe, a very important factor.

7. Was mechanical trauma to the free ends of the nail to blame? We observed some of the girls picking at resistant specks of dried paste on the bottles. I think that this factor is one of several, operative in producing the disorder.

8. Is there a personal factor predisposing to ease of separation of the nails? No evidence could be found in our examinations of the afflicted girls to support such an hypothesis. Yet the fact that only a small percentage of new employees were involved speaks in favor of it. If a new employee tolerated the work and did not show loosening of the nails within forty-eight hours, she apparently was capable of washing bottles indefinitely.

SUMMARY

New employees, apparently healthy, developed black spots under their fingernails within forty-eight hours after beginning work washing paste from labeled bottles. Within a few days the nails loosened from the nailbeds at these areas. The process was without symptoms. The nails regrew in from four to six months. Investigations revealed no specific industrial irritants at fault. I believe that the disorder was precipitated by maceration of the tissues by prolonged immersion in water plus, possibly, the mechanical insult to the tips of the fingernails from picking at resistant pieces of paste.

But back of all of this, in my opinion, was some personal factor which made the nails separate from the nailbeds more easily than would those of normal individuals.

COMMENT

Although my cases and those of Oppenheim belong to essentially the same group, it can be seen that there are some differences. My patients presented an acute fulminating separation of the nails, while the process in Oppenheim's patients was essentially a chronic one. This difference might be explained by my patients' immediate removal from the offending work. Oppenheim made no mention of the sudden appearance of blackened areas under the nails, which was so characteristic in my cases.

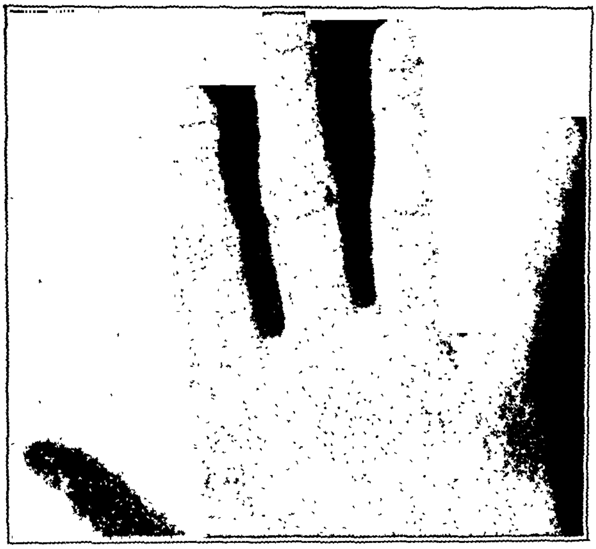
Fig. 5.—Earliest stage of onycholysis, as seen in author's third patient. Only a darkened area can be seen under the fifth nail.

Heller[3] described ten cases of onycholysis in which the etiology was indefinite. He believed that external irritants, such as soda did not play a causative rôle. His cases were unrelated to the industries and differed clinically from mine. He made no mention of sudden onset with darkening of the nailbed.

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3. Heller, Julius: Die Krankheiten der Nagel, Berlin, Julius Springer, 1927, p. 113.

THE BLOOD PICTURE IN SIX HUNDRED CASES OF GOITER

ESPECIAL REFERENCE TO THE EFFECT OF IODINE AND THYROIDECTOMY *

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In 1924 I began a study of the blood in toxic goiter to ascertain, if possible, whether or not the data would be of any value in determining the prognosis of the disease. European authorities, notably Kocher,[1] and his American disciple, Crotti,[2] have laid considerable emphasis on the importance of the blood picture in hyperthyroidism. Little study of this subject has been made in our own country, with the exception of an important contribution by W. A. Plummer[3] in 1918, and general observations by Hertzler[4] and a few others. Plummer's report was made before the metabolic rate had come into general use. Hertzler states, in conclusion, that the observations to date are so variable that a further study is much desired. So far as I have been able to ascertain there has been no report of the coordinated blood picture and metabolic studies, nor any of the effect of iodine on the former.

The purpose of this study is to show:

1. Whether or not the blood picture in hyperthyroidism varies from that in the normal person.
2. Whether the differential blood count is or is not of diagnostic and prognostic significance.
3. Whether there is or is not a definite relationship between the blood picture and the metabolic rate.
4. Whether a secondary anemia is typical or atypical of hyperthyroidism.
5. A change or the absence of one in the blood picture through the use of iodine.
6. Whether or not the blood picture in hyperthyroidism is of any practical clinical importance.

Although Miscowicz and Ciuffini in 1904 found a lymphocytosis in the blood of patients with hyperthyroidism, and Caro in 1907 reported similar observations in one case, it was Kocher who in 1908 gave these observations their true significance and considered them as the result of the disease. Since then a number of authors have reported the results of their investigations, upholding these conclusions.

Crile[5] believes that the most characteristic change in the blood picture in hyperthyroidism is the presence of a moderate degree of lymphocytosis.

Crotti states that the chief characteristics of the blood in patients with hyperthyroidism are leukopenia, hyperlymphocytosis and hypopolynucleosis.

Hertzler remarks that the lymphocytes generally are from 25 to 45 per cent but may reach 50 per cent or more. In many of the most severe cases, however, the lymphocytes are actually reduced.

According to Kocher, the differential blood count should be normal in simple goiter, while exophthalmic goiter should be characterized by a more or less marked lymphocytosis together with a general leukopenia in two thirds of the cases. The ingestion of the thyroid products should produce in man and animals a relative, or more often an absolute, increase of lymphocytes and a decrease in the polymorphonuclears.

De Quervain,[6] on the other hand, from a study of 250 cases found practically no change in the lymphocyte count in simple and toxic goiter. He found that the average percentage of polymorphonuclears is 64 in simple goiter, 61 in hyperthyroidism and 65 in hypothyroidism. The lymphocytes range about 28 per cent in simple goiter, 30 per cent in hyperthyroidism and 29 per cent in hypothyroidism. He adds that his results tally with those of Muller, Bielajew, Bauer, Lampe and others with regard to the nonspecificity of the leukocyte formula for the different conditions of the thyroid gland.

Kocher emphasized the presence of a leukopenia and based his conclusion on 106 cases in which there was an average count of about 5,000 leukocytes.

Plummer's series, based on a study of the blood counts in 578 patients with exophthalmic goiter, showed an average leukocyte count of 6,973.5. Plummer found that there is a relative and an absolute mononucleosis and a decrease in the percentage in the polymorphonuclear neutrophils, thereby confirming Kocher's observations. When a leukopenia is present the decrease is in the number of the neutrophils. He found that in the mortality statistics the relative lymphocyte count is a few points under the average but not sufficiently to be of value in prognosis. He believes that the differential count is of limited value in diagnosis. Except for a polymorphonuclear leukocytosis immediately following operation and during tonsillitis and other acute infections, he was unable to determine any factor which influences the characteristic blood picture.

On the contrary, Crotti believes that the differential blood count is of great help in deciding whether one has to deal with a thyrotoxic condition or not, and the same is true of the prognosis. He believes that a marked leukopenia, a high lymphocytosis and a marked hypopolynucleosis will show that the case is a serious one. A high percentage of lymphocytes without or with only a moderate leukopenia is of good prognostic value, whereas a marked leukopenia with a low percentage of lymphocytes must be regarded as a bad prognosis.

Table 1.—*Average Blood Count in Six Hundred Cases of Goiter*

	Colloid Goiter	Nontoxic Adenoma	Toxic Adenoma	Exophthalmic Goiter
Hemoglobin	75	79	78	78
Erythrocytes	4,200,000	4,190,000	4,960,000	4,790,000
Leukocytes	9,543	8,956	8,463	8,412
Polymorphonuclears	64	60	60	59
Lymphocytes	30	33	35	35
Transitionals	4	5	4	4
Eosinophils	2	2	1	2

From these conclusions it is evident that a wide divergence of opinion exists with regard to the differential blood count in goiter and also with regard to its diagnostic and prognostic importance.

In this series of 600 goiter cases, blood studies were made on the following types of goiter: colloid goiter, 100 cases; nontoxic adenoma, 100 cases; toxic adenoma, 200 cases; exophthalmic goiter, 200 cases.

The average blood count for this entire group is shown in table 1.

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* From the Jackson Clinic.

[1] Kocher, T., quoted by Crotti (footnote 2).

[2] Crotti, André: The Thyroid and Thymus, Philadelphia, Lea & Febiger, 1922.

[3] Plummer, W. A.: The Blood Picture in Exophthalmic Goiter, Collected Papers of the Mayo Clinic **10:** 359-363, 1918.

[4] Hertzler, Arthur: Diseases of the Thyroid Gland, St. Louis, C. V. Mosby Company, 1922.

[5] Cleveland Clinic: The Thyroid Gland: Clinics of George W. Crile and Associates, *Philadelphia*, W. B. *Saunders Company, 1922.*

[6] de Quervain, F.: Goitre, New York, William Wood & Co., 1924, pp. 80-81.

The influence of sex also was considered (table 7).

The influence of age which was also taken into consideration is shown in table 8.

CONCLUSIONS

In a study of 600 cases of goiter, the following conclusions are drawn:

1. The blood picture in hyperthyroidism does not vary essentially from that in the normal person.
2. The differential blood count in hyperthyroidism is not of diagnostic and prognostic significance.
3. There is not a definite relationship between the blood picture and the basal metabolic rate. The lymphocyte count is not varied by an increase or a decrease in metabolism.
4. The blood count is not influenced by the severity of the disease, considering metabolism and weight loss as paramount factors.
5. A secondary anemia is not typical of hyperthyroidism.
6. A leukopenia is not characteristic of hyperthyroidism.
7. Sex and age do not influence the blood picture in toxic goiter.
8. In spite of clinical improvement, no appreciable change was observed in the blood count following the use of iodine in hyperthyroidism.
9. The only appreciable change in the differential blood count in goiter was observed following thyroidectomy for exophthalmic goiter. An increase in the polymorphonuclear count and a decrease in the lymphocyte count occurred.
10. I do not believe that the blood picture in hyperthyroidism is of any practical clinical importance.

MENINGITIS CAUSED BY FRIEDLÄNDER'S BACILLUS

A CASE WITH RECOVERY *

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Most bacteria that are capable of causing general septicemia have at one time or another been found responsible for a case of meningitis. A most interesting rôle has been played by bacteria of the mucosus type. Reports have been published of meningitis caused by Streptococcus mucosus, and Bacillus mucosus-capsulatus has been several times found to be the cause of fatal meningitis. And yet, it is rather peculiar, in view of the fairly large number of pneumobacillus septicemias, that not more cases of pneumobacillus meningitis have been reported. I was able to find in the American literature only a single case of Friedländer's meningitis. This case was reported by Malis[1] and had a fatal outcome. The scarcity of reported and the rarity of nonfatal cases give me special impetus to report another case of pneumobacillus meningitis, this time with a favorable outcome:

J. M., a Negro, aged 34, a janitor, admitted to the otolaryngologic service of Dr. B. M. Howley, Oct. 30, 1930, and treated by the neurologic department in conjunction with Dr. Howley, complained of high temperature, pain in back of the right ear, stiffness of the neck, and drowsiness.

The patient's father is living. His mother died from heart disease. The other members of the family, two brothers and one sister, are living and well. There has not been any tuberculosis, diabetes or insanity in the family.

As a child the patient had measles, mumps and chickenpox. At the age of 11 years he had a slight attack of malaria. While in the army in France, he had a slight attack of pleurisy. He has had gonorrhea, but stated that he had not had syphilis. He is married. His wife is healthy. They have no children.

Aug. 6, 1930, the patient was out swimming. A few days later he felt as if he had water in the ear. After a few more days he heard noises in the ear but did not have any pain. At that time a physician considered the condition harmless. September 15, he became ill with fever and called a physician, who treated him for nine days. He improved and went back to work. September 24, he saw Dr. Howley, who did a paracentesis. The patient went home and felt better for a few days but became worse again. October 5, Dr. Howley operated on him for mastoiditis. He stayed in the hospital one week and then went home. He felt fine until October 29, when he was seized with a high temperature, delirium, and stiffness of the neck.

At the time of the physical examination the patient was unconscious and was irrational at times. The right pupil was somewhat larger than the left. The pupils reacted well to light. Accommodation could not be tested. The ears and nose were normal. There was a scar behind the right ear, originating from a mastoid operation done three weeks previously. The head was held slightly backward, and it was impossible to bend it forward to any great extent. The skin of the whole face was very sensitive to the touch. The thyroid gland was not enlarged. The apex beat was heard in the fifth interspace, one fingerbreadth within the nipple line. There were no murmurs. The volume was good. The lungs were normal to percussion and auscultation. No râles were heard. Slight general rigidity was noted in the abdomen. Motor power was good in all the extremities. The tendon reflexes of the right arm and leg were slightly exaggerated. Abdominal and cremasteric reflexes could not be elicited. There was no Babinski sign. Clonus was not present. The head was turned toward the right. A temporary diagnosis of brain abscess with meningitis was made.

October 30, a spinal puncture was done, which showed decreased pressure and a very cloudy fluid of a peculiar viscous consistency. Dr. Howley operated immediately and found a subdural abscess, with pus of yellowish color and mucoid appearance.

Urinalysis showed: specific gravity, 1.026; reaction, acid; albumin, a trace; sugar, 1.43 per cent; acetone, negative. Urates and a few epithelial cells were demonstrated microscopically.

Examination of the blood showed: hemoglobin, 55 per cent; erythrocytes, 3,690,000; leukocytes, 21,150; differential count: polymorphonuclears, 88 per cent; large lymphocytes, 4 per cent; small lymphocytes, 8 per cent.

Examination of the spinal fluid gave the following results: cell count, 1,100; globulin, 4 +; Fehling reaction, not reduced. Smears did not show any organisms. Culture was made.

October 31 the patient was in a slightly better condition. The temperature was up to 103 but dropped late in the morning to 99.4. It rose again in the evening to 102. The pulse was between 80 and 100. Respirations were 20 per minute. The patient showed signs of meningitis: slight stiffness of the neck and a medium Kernig sign.

There were no focal signs present. The reflexes were equal on the two sides, and no pathologic reflexes were noted. There was no disturbance of the cerebral nerves.

Mentally, there was a rather marked stupor. After a long interval following an order, the patient opened his mouth. On being given any other order such as show the tongue or open the eyes, he always opened his mouth and did nothing else. Questioning elicited the same answer:

"What is your name?" "John Mason."

"Where do you live?" "John Mason."

"Are you married?" "John Mason."

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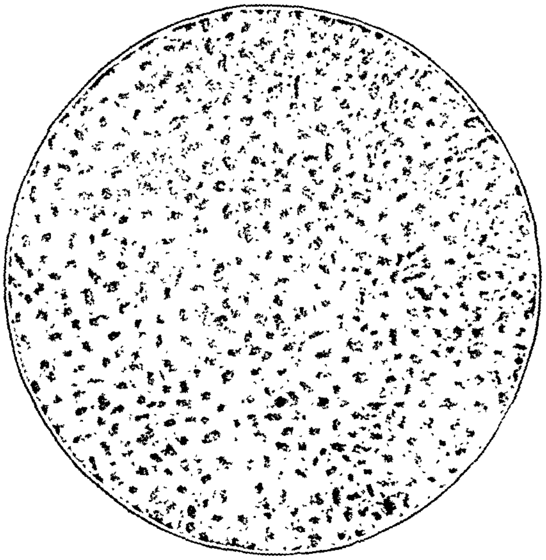
* From the department of Neuropsychiatry, St. Peter's General Hospital.

* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Malis, Solomon: Pneumobacillus (Friedländer's) Meningitis Secondary to Otitis Media, Arch. Otolaryng. **12**: 162-174 (Aug.) 1930.

mastoid infection. Comte, Lévy-Bruhl and Dany,[10] in the latest publication on this subject, report a fatal case the bacteriology of which is very similar to that in the case reported here, in that all sugars were fermented with gas formation and later reabsorption, and gelatin was not liquefied. Animal inoculation tests were fatal in mice as well as in rabbits. A case described by Gernez and Razemon[11] has, besides meningitis, signs of osteomyelitis, and they consider this the first case of bone invasion by Friedländer's bacillus. The case of Bocca, Ranque and Sénez[12] was a fatal one in an infant. Rénon and Blamoutier[13] report a case of chronic labyrinthitis with Friedländer's bacillus, which is a rare occurrence and paralleled only by the case of Brain and Valentine.[9] The case of Lion and Minvielle[14] had also a fatal outcome, as had those of Dufourt, Delattre and Bonnet[15] and Lequeux.[16] The fatal case of Ménétrier and Bertrand-Fontaine[17] is mentioned because of the extremely sudden onset with coma (début brutal). The cases of Weichselbaum,[18] Mills[19] and Dmochowski[20] are mentioned here because they were described before the practice of lumbar punctures was known. In their cases the organisms were found in cultures obtained from the meninges on autopsy. Breton and Mahée,[21] in making a survey of Friedländer's pneumobacillus meningitis in 1929, report that of nineteen cases studied twelve were purely meningeal, while in seven the meningitis developed secondarily to other infections. In my case pure cultures of the same organisms were obtained from the spinal fluid and from the brain abscess.



Bacillus mucosus-capsulatus (Friedländer's). Culture from spinal fluid. Note clearness of capsules.

The bacteriology of these peculiar organisms has been described in several articles, by Friedländer,[22] Malis, Brain and Valentine and others, and I will restrict myself to a few general remarks referring to the table for comparison. It has been asserted that the main characteristic of Friedländer's bacillus, besides the formation of mucoid colonies and the capsules (shown in the illustration), is the ability to ferment all the sugars with or without the formation of gas, and its inability to liquefy gelatin.

Two interesting reports have been made lately by Kraus[23] and by Kliewe,[24] who have found a bacterium in two different cases which Kraus calls Bacterium mucosum-mutabile. He found gram-negative mucus-forming rods which in the beginning were hard to differentiate from Friedländer's bacillus, but soon there developed a yellowish color of the colonies which was never found with Friedländer's, and milk was coagulated. Sugars were fermented. Gelatin was liquefied. The patient's serum was agglutinated in a 1:160 solution. The bacillus did not coagulate cultures of other mucoid bacteria. It was pathogenic for mice. In the course of the disease the color changed, and Kraus believes that all capsule bacteria can change their morphology by adaptability of the germs to the environment. Hence he gave this particular one the name of Bacterium mucosum-mutabile. Yet, according to Kliewe, it seems probable that several types are well characterized.

Malis, in his article referred to, shows several photographs of bacilli which are forming long chains and which rather deserve the name of Streptococcus mucosus-capsulatus. Urbantschitsch[25] in 1926 reported a series of eight cases of streptococcus mucosus meningitis in which only one patient recovered. He considers the infection so severe that he recommends, in doubtful cases, an early lumbar puncture and, in case a mucosus germ is present, immediate bilateral operation without consideration of the conditions of the drums.

What makes infection with mucus-forming bacilli so dangerous? As I have mentioned in the description of my case, the pus contained in the brain abscess had the appearance and consistency of a mucoid semiviscous fluid. The spinal fluid, too, was transformed into a gelatinous liquid. It seems to me that these physical properties may be the cause of the grave prognosis. The mucus will tend to fill in spaces and to clot the foramina, and cerebral blocks may well be responsible for the generally fatal outcome.

CONCLUSIONS

1. Cases of meningitis caused by Bacillus mucosus-capsulatus (Friedländer's bacillus) are usually fatal.

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[10] Comte, Lévy-Bruhl, M., and Dany: Un cas de méningite à pneumobacille de Friedländer avec septicémie, Bull. et mém. Soc. méd. d. hôp. de Paris **47**: 139-142 (Feb. 2) 1931.

[11] Gernez and Razemon: Ostéomyélite, méningite et septicémie mortelle à pneumobacille de Friedländer, Echo méd. du nord **27**: 329-330 (Aug. 11) 1923.

[12] Bocca, Ranque and Sénez: Un nouveau cas de méningite à pneumobacille de Friedländer, Marseille méd. **57**: 1232-1233 (Dec. 15) 1920.

[13] Rénon, L., and Blamoutier, P.: Un cas de méningite cérébrospinale à pneumobacille de Friedländer d'origine otitique, Ann. de méd. **9**: 119-122 (Feb.) 1921.

[14] Lion, G., and Minvielle: Un cas de méningite suppurée à bacille du type Friedländer, Bull. et mém. Soc. méd. d. hôp. de Paris **48**: 286-288 (March 7) 1924.

[15] Dufourt, Delattre and Bonnet: Mèningite traînante à pneumobacille de Friedländer chez un nourrisson, Lyon méd. **138**: 375-376 (Sept. 26) 1926.

[16] Lequeux, P.: Etiologie et pathogénie des hémorrhagies graves du nouveau-né, Paris thesis, 1906, p. 103, case XVII.

[17] Ménétrier, P., and Bertrand-Fontaine: Sur un cas de méningite suppurée à pneumobacille de Friedländer à évolution suraiguë, Bull. et mém. Soc. méd. d. hôp. de Paris **48**: 114-116 (Feb. 1) 1924.

[18] Weichselbaum, A.: Ueber eine von einer Otitis media suppurativa ausgehende und durch den Bacillus pneumoniae (Friedländer) bedingte Allgemeininfektion, Monatschr. f. Ohrenh. **22**: 200-205 (Aug.), 229-233 (Sept.) 1888.

[19] Mills: Méningite à pneumocoques, J. de méd. de Bruxelles **94**: 501-503 (July 6) 1892.

[20] Dmochowski, Z.: Beitrag zur Lehre über die pathogenen Eigenschaften des Friedländerschen Pneumokokkus, Centralbl. f. Bakt. **15**: 581-588 (April 27) 1894.

[21] Breton, A., and Mahée, G.: À propos des méningites cérébrospinales à pneumobacilles de Friedländer, Gaz. méd. de France **3**: III-V (Aug. 15) 1929.

[22] Friedländer, C.: Ueber die Schizomyceten bei der akuten fibrinösen Pneumonie, Virchows Arch. f. path. Anat. **87**: 319-324 (Feb. 4) 1882.

[23] Kraus, E. J.: Ueber ein neues menschenpathogenes Kapselbakterium, Centralbl. f. Bakt. (part 1) **99**: 497-505 (Sept. 20) 1926.

[24] Kliewe, H.: Tödlich verlaufende Meningitis, verursacht durch einen Kapselbazillus, Centralbl. f. Bakt. (part 1) **107**: 100-104 (April 18) 1928.

[25] Urbantschitsch, E.: Ueber Mucosus-Meningitis, Ztschr. f. Hals-, Nasen- u. Ohrenh. **16**: 129-147 (July 31) 1926.

etiologic incitant. Scheel and Föien[4] believe that the greater effusions are followed more frequently by tuberculosis than are the less abundant exudates and the dry pleurisies. The acute dry form frequently develops into a pleurisy with effusion, a fact which suggests that a dry pleurisy is but a mild or early expression of the pathologic process which results in the outpouring of fluid. If such is the case, one may justifiably look on an acute dry pleurisy as just as good evidence of tuberculous infection as is pleurisy with effusion. Such is certainly the tendency in the modern textbooks on this subject,[5] yet there are very few figures to support this contention.

The reasons for the paucity of definite data on patients with acute dry pleurisy are apparent. In the first place, because patients with this disease are not often severely ill for any length of time, they are not treated as hospital patients, and therefore hospital statistics are not forthcoming. If they become hospital patients, it is not easy to get adequate follow-up studies on them, for reasons which will be cited later. Secondly, the diagnosis of acute dry pleurisy in the absence of a friction rub or fever is often difficult, however definite the symptoms, and any series of cases must contain some in which the diagnosis will be open to question. Lastly, as stressed by Lord[2] and by Capps,[5] the condition is very rarely if ever primary, being related much more commonly to infection in the lung, lymph glands or other sites not detectable at the time of the acute illness.

The present study was undertaken to secure additional information regarding the subsequent course of patients with acute dry pleurisy. The case histories of all patients seen at the Peter Bent Brigham Hospital from 1913 to 1930 in whom the condition was diagnosed as pleurisy were reviewed. Only those cases were accepted for follow-up study in which the pleurisy was acute, without definite evidence of fluid, and in which no primary disorder could be demonstrated. Thus, all cases of pneumonia, of pulmonary tuberculosis or lung abscess, of pleurisy with effusion, of heart disease in which infarction of the lung was either evident or suspected, of pericarditis or mediastinitis, of definite rheumatic infection, of sepsis and of chronic nephritis were excluded. Four cases with symptoms and signs indicating an acute bronchitis were included in which there was evidence as well of a definite pleurisy. A tabulation of the cases reviewed indicates the incidence with which pleurisy is seen at this hospital. The 930 cases reviewed fall into three groups. One hundred and forty-nine were acceptable as instances of acute dry pleurisy. In the second group there were 142 cases in which this diagnosis might have been made but, because of the absence of a rub or râles, of fever or a clear-cut history, they were not accepted and were classified as "questionable." Our review of these case histories has made us willing to subscribe to the aphorism of Sir Thomas Horder,[6] who wrote, "There are probably few diseases more often diagnosed without adequate reasons than pleurisy; there are probably few diseases that exist more often unsuspected." It is commonly very difficult to make a diagnosis of pleurisy. A patient who complains only of chest pain without cough or fever and who has no friction rub or râles may be suffering from nothing more than myositis or neuralgia, yet the diagnosis of pleurisy nearly always comes first to mind. Hence one finds many instances of "questionable" pleurisy. The third group of 639 contains the cases of pleurisy with effusion or pleurisy secondary to some other condition, such as pneumonia or tuberculosis, which was recognizable at the time the cases were under observation.

Follow-up studies were possible on only 40 of the 149 patients with acute dry pleurisy. Information could be obtained on so few, largely because of the peripatetic habits of ward and dispensary patients, and partly because many of them, having no subsequent illness, did not return to the hospital or were apparently unwilling to do so when asked. The 109 cases in which no follow-up records were obtainable have been discarded because little that is new can be learned from them.

The important facts concerning the forty patients followed are these: There were twenty-one males and nineteen females. The average age was 30 years, with 14 and 54 as extremes. To indicate the extent of the illness, the duration of symptoms before the patients were seen averaged nine days, with one and ninety-six as extremes. The patients admitted to the hospital had an average stay of thirteen days. Concerning the symptoms and signs of pleurisy, all forty had pain, eighteen (45 per cent) of them had cough, twenty-eight (70 per cent) had a pleural friction rub, and twelve (30 per cent) had râles. The average maximum mouth temperature was 99.8 F. Twelve had no temperature higher than 99; eleven had temperature between 99 and 100, and fifteen between 100 and 103. The average white blood cell count was 11,800, with 8,000 and 25,000 as extremes. We are chiefly concerned here with the subsequent course of these patients. Our information about them was obtained in twenty-two instances by correspondence and in eighteen by examination in the outpatient department of this clinic. The patients written to were sent a questionnaire inquiring about their interval history and their health at the present time.

Source of the Material Studied

	Number of Cases		
	Acute Dry Pleurisy	Questionable Acute Dry Pleurisy	Pleurisy with Effusion or Secondary to Other Conditions
House patients (among 36,000 admissions)........	74	23	471
Outpatients (among 139,000 patients)..................	75	119	168
Total..................	149	142	639

Of particular interest is the fact that in only four of these patients did pulmonary tuberculosis develop. The remaining thirty-six who have reported on their health or have been examined after a period of from one to sixteen years have been found to be essentially in good health. The average length of time they have been followed is seven years, one year being the shortest and sixteen years the longest period. Four patients have had one or more recurrences of pleurisy, and two have had lobar pneumonia. A few have reported respiratory infections without any consequential sequelae, and doubtless many of the others had "colds" or bronchitis which they did not report. One patient has

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[4] Scheel, O., and Föien, T.: Pleurésies et tuberculoses consecutives aux pleurésies, Acta med. Scandinav. **68**: 5, 1928.

[5] Lord (footnote 1). Funk (footnote 1). Capps, J. A.: Diseases of the Pleura, Oxford Medicine, New York, Oxford University Press, 1929, vol. 2.

[6] Horder, Thomas: Medical Notes on Pleurisy, Practitioner **103**: 248 (Oct.) 1919.

ADVANTAGES OF CECOSTOMY PRELIMINARY TO RESECTIONS OF COLON AND RECTUM *

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Cecostomy has been advocated especially in acute obstruction of the colon but has not been sufficiently emphasized as a measure preliminary to interval operations on the large intestine. Wound repair differs markedly according to the tissues injured, the single, repeated or continued factor of injury preceding or associated with repair, the factor of rest, but especially the factors of blood supply and of presence or absence of infection. An uncomplicated, sutured, sterile incised wound of the skin presents the simplest form of repair, for the injury is mechanical and single, and the reparative process goes on without the interference of further injury. Repair in a sutured incised wound of the colon is quite the opposite. It is complicated from the start by factors which not only delay but which may prevent wound healing: infection with bacteria of the most virulent forms, tension on suture points and lines due to peristalsis or distention, and compromised blood supply due to edema of the infected tissue or to vascular compression, the result of a distended intestine.

Unfortunately, the proof of the foregoing premise is the very high percentage of morbidity and mortality associated with the surgery of the large intestine, and unfortunately too many surgeons accept this high risk or evade it by not attempting surgery of the colon. Ought we not rather to analyze the reasons for this risk and seek means of reducing it?

In studying the subject of wound repair in various tissues, one is immediately struck with the similarity in the graphs of the rate and rhythm of healing, as determined by different investigators. Carrel and Lecomte du Noüy,[1] and Spain and Loeb[2] obtained similar curves in cicatrization of skin wounds; and Harvey, Howes and Sooy[3] found remarkably consistent curves in the repair of wounds of the skin, fascia, muscle and stomach. These mathematically measured rates of healing agree consistently with many of everyday clinical observations, but they show definite critical periods. In all these curves there is a "lag" period of from four to six days during which repair is quiescent; then a period of from six to nine days of fibroblast proliferation and organization, when healing rapidly rises to its maximum point of tensile strength. Following this is a long period, varying in different tissues of maturation of the cicatrix.

It is to the "lag" period and the first days of fibroplasia in the colon that I would call attention. During the first two to four days of repair following anastomosis of the colon, the cut ends, or stoma edges, are held together by suture material or by pressure of apposing buttons, if such a mechanical means is used. Leakage is prevented, to a certain extent, by accurate suture, but far more important and effective is the sealing off of the peritoneal lines of contact, which are usually apposed by the seroserous stitch, by the rapidly forming fibrinous exudate. Provided there is no gross leakage and provided the sutured part can be kept at rest for a few hours, the wonderful reparative peritoneal exudate builds up a sufficient barrier to infection until the process of fibroplasia has united the wound edges and the epithelium has bridged the defect.

But it is during this critical first four to six days, when only peritoneal exudate and sutures are holding the barriers, that tension on the suture line either by atonic distention or by overactive peristalsis can accelerate the factor of infection in destroying the peritoneal line of defense and establishing a peritonitis, localized or diffuse, or a fecal fistula.

Distention of the colon both stretches the tenuous line of suture and diminishes the much needed blood supply to the area of wound repair. This in turn favors pressure necrosis of the suture line and leakage.

Whether one uses the suture or button method of anastomosis in a contaminated field, or attempts one of the 200 or more described methods of aseptic anastomosis, the factors of distention and peristalsis will continue to be damaging and even fatal factors during the first two to six days of repair. It is in an effort to reduce these factors and to place the colon at rest during the critical period of healing that I am advocating the use of cecostomy, preferably two to four days before the major procedure on the colon.

The advantages of a cecostomy carried out two to four days before a resection of the colon or rectum are:

1. It makes possible a proper cleansing of the colon before the major procedure.
2. It permits the part anastomosed to be at rest until the period of fibroplasia is complete.
3. It increases the comfort of the patient by reducing distention and pains of ineffectual peristalsis.
4. It obviates the temptation and the necessity in some cases of giving enemas or irrigations in the critical period of repair.
5. In cases of partial or complete obstruction of the colon or rectum it has long been recognized as essential. If it works so well in the patients who are desperately sick, it is even more efficacious in the nonobstructed case.

I advocate cecostomy rather than appendicostomy for the following reasons:

1. The appendix either is missing or is so atrophic in adults as to be of little use as a sheath for a rubber tube.
2. A cecostomy properly done by the Kader or the Witzel method closes more promptly than an appendicostomy.
3. A tube sufficiently large to act as a real safety valve can be placed in the cecum more easily than in the appendix.

There are certain dangers to be avoided in the use of preliminary cecostomy:

1. The overenthusiastic use of the cecostomy tube as a means of administering fluids or enemas or irrigations before and after major procedures on the colon and rectum should be discouraged. This carries risk of leakage around the cecostomy opening and, after resections, of distending the intestine proximal to the suture line.
2. The tube should be kept in one position. If it comes out, it should be left out.

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* From the Surgical Department, Columbia University College of Physicians and Surgeons and Presbyterian Hospital.

* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Carrel, Alexis; and Lecomte du Noüy, P.: Cicatrization of Wounds: Latent Period, J. Exper. Med. **34**: 339 (Oct.) 1921.

[2] Spain, K. C., and Loeb, Leo: Wound Healing, J. Exper. Med. **23**: 107 (Jan.) 1916.

[3] Howes, E. L.; Sooy, J. W., and Harvey, S. C.: The Healing of Wounds as Determined by Their Tensile Strength, J. A. M. A. **92**: 42-45 (Jan. 5) 1929.

together substances of unequal density and subjects them to any stress or strain, the substance of less density will yield and thereby produce a leak. In the method that I am proposing, one does not pass any sutures through the catheter. If the bowel is not too much damaged, one may make a layer or two of purse-string sutures. The catheter can be brought through the omentum, as described by Dr. Mayo, which adds security to its position, and brought out through the operative incision. When its usefulness has expired, the shank of the catheter is drawn up as closely as possible and cut off, and the remainder is passed out through the alimentary canal by the natural processes of evacuation. It will be found that the method serves many useful purposes and can be rapidly done.

Dr. Allen O. Whipple, New York: I meant to state in the paper that the method of cecostomy was limited to the cases in which the cecum was not involved. Dr. Abell is quite right in stating that it is not a method suitable for cases in which the cecum is to be resected. In regard to the subsequent dealings with the cecostomy, in none of the cases in which this method was carried out was it necessary to close the cecostomy. In some ways, undoubtedly, a cecostomy such as Dr. Horsley mentioned is a more effective method, but it certainly requires a subsequent closure. I am interested in the suggestion of Dr. Hendon in regard to the use of a mushroom catheter. The only objection that I could see, possibly, to that method is that it might be a little more difficult to irrigate in case the openings of the catheter became obstructed, but I should be greatly interested in trying it for that purpose.

Clinical Notes, Suggestions and New Instruments

TRANSITORY HYPERTENSION DURING SPINAL ANESTHESIA: REPORT OF A CASE

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Kansas City, Mo.

During the past few years the literature has contained numerous articles intended to encourage the use of spinal anesthesia and pointing out the safety of this procedure. Excluding the conditions in which this type of anesthesia is contraindicated, e. g., intestinal perforation, shock and conditions contraindicating the Trendelenburg position, it has been amply shown that the morbidity and mortality are increased through rapid fall in vascular tension not properly controlled by the use of epinephrine or ephedrine.

The literature stresses the complete relaxation that usually occurs in surgery below the diaphragm following the administration of spinal anesthesia. With this type of anesthesia there is usually an absence of intestinal distention during the operation and during the postoperative period. The latter is usually marked by normal peristalsis, a soft abdomen and the absence of pain associated with distention, which is so common following ether anesthesia. In our work we have found that, in surgery below the diaphragm, spinal anesthesia almost invariably gives complete relaxation and diminishes postoperative discomfort.

In a review of the literature we fail to find any reports of hypertension following the use of spinal anesthesia. McKittrick, McClure and Sweet[1] and practically all others in their reports on this type of anesthesia fail to note any cases in which hypertension developed but rather stress the fall in vascular tension. Twenty-five per cent of the series had a fall of 50 per cent or more in blood pressure. Although the exact physiologic action of ephedrine is not agreed on, Burch and Harrison,[2] in their experiments on dogs anesthetized by spinal anesthesia, found that when ephedrine was given intravenously in no instance did the "mean blood pressure rise above the control value before anesthesia." When ephedrine was given intraspinally the blood pressure was equal to or above normal. They do not record a marked hypertension following the use of ephedrine either intravenously or intraspinally.

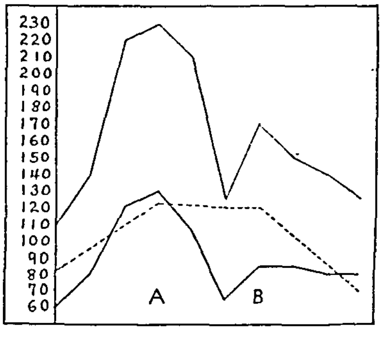
REPORT OF CASE

A man, aged 39, seen by one of us, Jan. 1, 1930, complained of abdominal discomfort with localized tenderness in the right lower quadrant. Periodic attacks of a similar nature had occurred over a period of eight months. He was again seen, July 16, 1931, at which time an operation was advised for chronic appendicitis. On the first date the blood pressure read 125 systolic and 70 diastolic. He was admitted to the Research Hospital, July 17, at which time the blood pressure read 110 systolic and 60 diastolic. He was given a preliminary narcotic consisting of one-sixth grain (11 mg.) of morphine and 1/150 grain (0.4 mg.) of atropine an hour before operation, July 18. He was given 0.025 mg. of ephedrine subcutaneously immediately before the spinal puncture; 3 cc. of a proprietary preparation containing procaine hydrochloride and strychnine sulphate (spinocaine-Metz) was given intraspinally. The blood pressure, pulse and respiration were recorded every five minutes during the operation, as shown in the accompanying chart. The administration and the control of the anesthesia were in the hands of one who is well versed in spinal anesthesia, Dr. Frank Hurwitt.

A right rectus incision was made. Coincidental with the rise in vascular tension there was a marked rigidity of the abdominal musculature. Fifteen minutes elapsed before the patient was moderately relaxed and anesthesia present. During the entire operation, complete relaxation was absent. The appendix was long and tortuous and decidedly bound down by many adhesions. The incision was closed with difficulty. During the closing of the incision, another rise in blood pressure was noted.

The postoperative convalescence was marked by gas pains and distention, insomnia and some febrile reaction. The day following the operation the patient complained of abdominal pain, which was due presumably to distention. This continued for four days. The patient sat up in a chair on the sixth day and was dismissed from the hospital on the ninth day.

During the convalescence the blood pressure was 118 systolic and 80 diastolic. The temperature ranged from 99.6 to 101.2 F., the pulse from 80 to 100. Since returning home he has eaten well, slept well and had normal bowel movements and a good appetite. The wound healed primarily. He began some work at his office, August 1 and has continued at work without difficulty.



Blood pressure (solid lines), and pulse (broken line): *A*, incision; *B*, closure.

After having written to several authorities on spinal anesthesia, we have come to the conclusion that the mechanism of this reaction is perhaps most clearly explained by Dr. L. F. Sise[3] of Lahey's Clinic. He believes that the anesthetic did not get entirely within the dura. A light anesthesia resulted. Therefore, motor paralysis and muscular relaxation were not sufficient. The full dose of ephedrine not being counterbalanced by the full action of the spinal anesthesia would produce the marked rise in blood pressure.

Even though we believe that the spinal anesthesia was given correctly, e. g., the lumbar puncture was done without difficulty and a free flow of spinal fluid obtained at once, Dr. Sise's explanation would seem plausible.

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[1] McKittrick, L. S.; McClure, W. L., and Sweet, R. H.: Surg. Gynec. Obst. **52**: 898 (April) 1931.

[2] Burch, J. C., and Harrison, T. R.: Surg. Gynec. Obst. **52**: 953 (May) 1931.

[3] Sise, L. F.: Personal communication to the authors, July 27, 1931.

PHYSICAL CHARACTERISTICS OF THE ULTRAVIOLET RADIATION EMITTED BY COLD QUARTZ LAMPS

Radiation measurements were made on two types of cold quartz ultraviolet generators (mercury glow lamps): (1) a long slender quartz tube type of orificial applicator and (2) a grid type in an aluminum reflector.

The radiometric measurements were made with the vacuum thermopile and a quartz fluorite achromatic spectroradiometer, regularly employed in such work. No attempt was made to obtain spectrum photographs, because they cannot give quantitative measurements, though if intelligently employed they may show something of the spectral quality of the radiation emitted. For example, spectrum photographs of new, clean applicators usually show emission lines of wavelengths shorter than about 190 millimicrons. However, one applicator type of lamp was brought to my attention that, according to the spectrograms submitted, did not emit (transmit) ultraviolet rays shorter than about 226 millimicrons. Assuming that the ultraviolet spectrograph was functioning properly, it appeared that the absence of ultraviolet rays shorter than 226 millimicrons probably resulted from the fact that, since the walls of the quartz tube forming the applicator were no longer perfectly clear, the short wavelengths were absorbed in their passage through the tube; for it requires but little contamination of the surface of the quartz tube to effect great absorption of the very short wavelength ultraviolet rays.

Cold Quartz Orificial Applicator.—The following data were obtained on a cold quartz orificial applicator operated on 0.013 ampere, and 640 volts, or about 8 to 10 watts in the burner. This particular lamp was operable on two voltages. The intensity of the ultraviolet radiation emitted when the lamp was operated on the higher voltage was 1.6 times that obtained on the lower voltage.

By placing the luminous tube of the cold quartz ultraviolet generator lengthwise, close to the slit of the spectroradiometer, it was found that the intrinsic intensity of the 2,537 angstrom unit line is relatively high, being about 215 microwatts per square centimeter at the surface of the applicator. It was observed also that 96 per cent of the total erythemogenic rays (of wavelengths less than and including 313 millimicrons) was emitted by the resonance line at 254 millimicrons. By means of a thermopile and filter method,[6] it was found that 97.8 per cent of the erythemogenic rays was emitted by the line at 254 millimicrons, which is in good agreement with the preceding test.

Cold Quartz Grid Type Ultraviolet Generator.—Measurements of the ultraviolet radiation emitted by this lamp were made with an achromatic spectroradiometer and a vacuum thermopile; also by a balanced thermopile and filter method.[7]

The lamp was operated on 115 volts, alternating current, and 60 cycles on the primary of the transformer, with 30 milliamperes through the lamp as specified.

Under these conditions it was found that the relative intensities (corrected for absorption in the spectroradiometer [7]) of the short wavelength ultraviolet lines that were measurable at 313, 297 and 254 millimicrons were 45, 14 and 865. From this it follows that about 94 per cent of the total radiation of wavelengths less than and including 313 millimicrons is contained in the resonance emission line at 254 millimicrons. This is a trifle lower than the value obtained for the cold quartz applicator. But in the grid lamp examined, the quartz tubes were not quite so clear as in the applicator, which would reduce the intensity at 254 millimicrons relative to the intensity at longer wavelengths.

The total radiation of wavelengths less than and including the line at 313 millimicrons, at a distance of 25 cm. from the center of the lamp, measured by a new balanced thermocouple and filter method [7] was 186 microwatts per square centimeter.

Physiologic tests [7] were made of the erythemogenic efficiency of this lamp, and a close agreement was found between the observed and the calculated time of exposure to produce a minimal perceptible erythema.

Since the publication [8] of experiments on irradiation of cod liver oil, ergosterol and cholesterol, showing that wavelengths shorter than 280 millimicrons are destructive to vitamin D, the feeling is abroad that it is undesirable to use ultraviolet rays of wavelengths shorter than about 280 millimicrons for therapeutic purposes, and hence, in recent years, therapeutic lamps are generally covered with a glass that eliminates these rays.

The radiation from the quartz mercury vapor glow lamp is predominatingly of wavelengths that have a high germicidal action.[9]

In fairness to the purveyor of the particular make of lamp examined, it is relevant to add that the accompanying literature indicated that the device was being promoted as a germicidal agent. Credit is to be given also for the caution sign on the instrument to "protect the eyes at all times by wearing glasses."

Even after this warning is heeded, accidents are possible, as witness the aforementioned case of conjunctivitis in the outer corner of the eye, caused by radiation passing back of the spectacle lens when the subject was standing with the face exposed sidewise to the lamp.

CONCLUSION

It seems relevant to comment on the great difference in the physiologic action of the ultraviolet rays of wavelengths less than 265 millimicrons in artificial sources (absent in sunlight) as compared with the wavelengths from 310 to 315 millimicrons, which are very intense in sunlight. The ultraviolet rays of wavelengths in the region of 254 millimicrons do not penetrate deeply into the skin, the erythema produced is superficial, and an overexposure of several times the dosage required to produce a minimal perceptible erythema does not produce a blister.

In contrast, if the untanned skin is exposed to the more deeply penetrating rays of wavelengths 310 millimicrons and longer, for an interval that is only slightly longer than the dosage time required to produce a minimal perceptible erythema, a painful blister is produced. This phenomenon was noted by Hausser and Vahle,[10] and more recently by us.[11]

During the past summer, further physiologic tests were made,[12] measured amounts of ultraviolet radiation

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[6] Coblentz and Stair: Bur. Stds. J. Research **6**: 951, 1931.

[7] *Coblentz, Stair and Hogue:* Bur. Stds. J. Research **7**: 723, 1931.

[8] Heilbron, I. M.; Kamm, E. D., and Morton, R. A.: Biochem. J. **21**: 78, 1927; J. Chem. Soc. London **268**: 2000, 1927. Bills, C. E.; Honeywell, E. M., and Cox, W. M., Jr.: J. Biol. Chem. **80**: 557 (Dec.) 1928. Wyman, E. T.; Holmes, A. D.; Smith, L. W.; Stockbarger, D. C., and Pigott, Madeleine G.: Does the Irradiation of Cod Liver Oil Increase Its Antirachitic Potency? Am. J. Dis. Child. **34**: 753 (Nov.) 1927.

[9] Coblentz and Fulton: A Radiometric Investigation of the Germicidal Action of Ultra Violet Radiation, Bur. Stds. Sc. Papers **19**: 641, 1924.

[10] Hausser and Vahle: Strahlentherapie **13**: 41-71, 1921.

[11] Coblentz, Stair and Hogue: Proc. Nat. Acad. Sc. **17**: 401-405, 1931.

[12] Coblentz, Stair and Hogue: Bur. Stds. J. Research **7**: 743, 1921.

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SATURDAY, DECEMBER 26, 1931

MALIGNANT CONDITIONS IN RADIOACTIVE PERSONS

Martland,[1] in 1925, reported cases of anemia and of necrosis of the jaw in persons who had been employed in painting watch dials with paint made luminous by the addition of radium, mesothorium and radiothorium. During several years previous to 1924, 800 girls did such work in a New Jersey factory. The girls swallowed small amounts of radioactive paint day after day as a result of pointing the brushes with the lips. Some who had worked for one or more years developed necrosis of the jaw and anemia, from which, up to 1928, thirteen died. Martland, who had followed these carefully, believed toward the end of 1928 that the worst period was over and that, with few exceptions, no more workers would develop radium poisoning. Dial painting was stopped there several years ago. Now, however, another pathologic condition seems to have arisen among the employees who swallowed radioactive paint. Since 1928, rapidly growing osteogenic sarcomas have appeared in at least eight cases. One girl died of sarcoma of the pelvis and of the orbital cavity; another, described as healthy in 1925 although her expired air was radioactive, developed osteogenic sarcoma at the site of a spontaneous fracture of the femur; another dial painter has twice sustained a pathologic fracture of the femur at the same site and sarcoma is suspected, and another former dial painter has recently developed osteogenic sarcoma of the pelvis. Four additional possible cases of sarcoma in former dial painters have come to Martland's[2] attention. These delayed cases of illness passed through the period when necroses of the jaw and anemias were developing in these workers and the present attack on their health is of a different nature. The difference is explained thus: In the early cases, mesothorium, which is physiologically more active than radium, predominated, but enough time has elapsed since their exposure to radioactive substances to allow the mesothorium to diminish in quantity by its own natural decay to below half its former strength. In the late cases which have resulted fatally, only radium, which is less active physiologically than the mesothorium, has been detected, and this has accumulated in the bony skeleton. Gettler, who examined the bones of a dial painter exhumed five years after death, found 0.05 mg. of radium distributed in the skeleton. He estimated that one-fourth ounce of bone from this painter contained $\frac{1}{50,000}$ mg. of radium and that the number of atoms of radium in this amount of bone was fifty billion. One thousand alpha particles per second were ejected from this one-fourth ounce of bone. Alpha particles, which, Martland says, are probably the most destructive agent known to science, consist of nuclei of helium atoms containing two positive charges ejected from the nuclei of the parent radioactive atoms at an initial velocity of from 12,000 to 18,000 miles per second. This destructive bombardment in the bones produces pathologic changes that give rise to anemia and to radiation osteitis and it is these areas of bone in which later sarcomas arise.

Flinn[3] recently suggested a method of treatment that will eliminate radium salts from the organism as well as improve the condition of the bone if continued for sufficient time. His next report of the treatment of radioactive patients is awaited with interest.

The study by Martland and his associates will aid in understanding the effects of other radioactive substances. The high incidence of primary carcinoma of the lungs in the cobalt miners of Schneeberg and in the pitchblende mines of Joachimstahl, and the various lesions produced by external exposure to radium and x-rays, demand investigation. Many of the radioactive substances sold to the public for the cure of various ailments may be dangerous to health. Martland was called to testify against the interstate sale of vials of mesothorium and radium which were to be ingested after being dissolved in water for the cure of disease. If taken as directed, the amount of radioactive substances in them would equal that taken by some of the dial painters. He examined two patients who had taken such water from one to two years; both showed radioactivity when tested by electrometers, and both had extensive necrosis of the upper jaw. Should these waters which are sold to the public contain only emanations in the form of radon or thoron it would be impossible to drink enough to furnish emanation that would be beneficial. Waters containing only emanation, Martland says, are frauds, and he doubts whether they are harmless. In 1926, more than 150,000 emanators were sold on the Pacific Coast. The human body in its normal environment is radioactive, but the makes a physical examination for the specific purpose of helping an individual patient; he is on the watch for definitely pathologic conditions which obviously affect the health of the patient. Doubtless minor degrees of structural or functional impairment are noted and may or may not be mentioned. After the probable major difficulty has been located, the abnormalities on the borderline of significance often receive little attention. However, statistical results are influenced largely by the apparently insignificant deviations from the normal since they constitute the majority. It thus happens that certain types of research of considerable importance in matters of public health depend finally on the uniformity of interpretation by examining physicians. When, for instance, the investigation deals with the influence on health of the temperature and humidity of the air in certain industrial plants, not only the mortality and incidence of sickness but also the physical examination becomes of great significance. Almost no two physicians of equal training, ability and experience will proceed in the same way or attach the same interpretation to their observations. Conditions which one examiner reports within the normal range may be reported as mild or severe by another. Quantitative determinations may be reported in standard denominations, yet the differences in interpretation of what values fall within and what without the normal variation may alter the final conclusions to be drawn from the data. When these cases in point are multiplied many times, as in a nation-wide study of problems of public health, it is obvious that there is a likelihood of differences due largely to the standards of the examiners being incorrectly attributed to factors peculiar to the industry under investigation.

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[1] Martland, H. S.; Conlon, Philip; and Knef, J. P.: Some Unrecognized Dangers in the Use and Handling of Radioactive Substances, with Special Reference to the Storage of Insoluble Products of Radium and Mesothorium in the Reticulo-Endothelial System, J. A. M. A. **85**: 1769 (Dec. 5) 1925.

[2] Martland, H. S.: The Occurrence of Malignancy in Radioactive Persons, Am. J. Cancer **15**: 2435 (Oct.) 1931.

[3] Flinn, F. B.: Elimination of Radium Salts from the Human Body, J. A. M. A. **96**: 1763 (May 23) 1931.

In an effort to obtain greater uniformity of procedure and to enhance the significance of the results of the physical examination, Britten has suggested some principles along which progress might be made. The examiner should, if possible, proceed without knowledge of whether the subject is normal or not; evidence should appear in the report that the condition in question has at least been looked for; some standard scheme for evaluation of degrees of variation from the normal should be established, though it finally devolves on the examiner himself to decide whether or not a condition is pathologic. Since it is necessary that these degrees of abnormality be uniformly understood by all examiners, a definite set of instructions and a short but intensive training in the details of the examination should be given. Not only should a thorough history be obtained but allowance should be made for the presence of an acute condition during the examination and, if possible, the examination repeated after the acute condition has subsided. In an effort to stimulate thoroughness, a minimum time required for the examination should be established.

The foregoing discussion emphasizes one of the problems that have grown out of the expansion in the work of the public health service. It seems reasonable to expect that, in order to obtain results of significance in those investigations depending on the results of physical examinations, this procedure must be standardized to a greater degree than it has been heretofore. This general thesis should, however, be applied with care. While group investigation will doubtless require more or less standardization of procedure on the part of the members of the group, the art and science of medicine will probably be furthered in the future, as it has been in the past, largely by efforts made in the way peculiar to the individual.

Current Comment

OYSTERS—A PLEASANT TYPE OF THERAPY

The announcement by Hart [1] and his collaborators at the University of Wisconsin three years ago that copper is effective in supplementing iron in the cure of anemia produced by an exclusive milk diet in the rat promptly aroused the interest of the medical profession. Despite the importance of this discovery it must be admitted that the inferences hastily drawn by others than the investigators themselves have led to not a little confusion and mistaken advice. The work of Hart referred specifically to a unique type of nutritional anemia in a laboratory animal. There has been no warrant whatever in applying the observations without reservation to some of the unusual conditions of the blood, such as pernicious anemia in man, that have until recently been so baffling to the physician. At the moment there is some debate as to whether copper stands alone in the capacity to promote the function of the indispensable iron in hemoglobin and blood cell formation. Other elements, such as manganese and germanium, are clamoring for equal recognition. Meanwhile all sorts of new products containing both iron and copper are being commercially exploited and foisted not only on an ignorant public but also on an uncertain medical profession, although the Council has reported that the use of copper and iron mixtures lacks sufficient clinical supporting evidence (see page 1967, this issue). The chief objection to such unproved therapy is that a sense of security in the use of some drug leads to the neglect of other modes of therapy that may be far more effective. Many persons assume that copper is a scarce element in our foods, just as iron was formerly assumed to be. The facts are that both elements are more ubiquitous than might be anticipated. Illustrations of this are coming to light in rapid succession. The question Have you had your iron today? no longer conjures up the picture of raisins, which have distressed more than one person through overindulgence. Oysters, for example, have just been shown by Levine, Remington and Culp [2] to be capable of curing the nutritional anemia of milk-fed rats. The presence of copper in the

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[1] Hart, E. B.; Steenbock, Harry; Waddell, J., and Elvehjem, C. A.: J. Biol. Chem. 77: 797 (May) 1928.

[2] Levine, H.; Remington, R. E., and Culp, F. B.: The Value of the Oyster in Nutritional Anemia, J. Nutrition 4: 469 (Nov.) 1931.

December 7, on bone diseases.——A recent meeting of the Ogle County Medical Society was addressed, among others, by Dr. Roswell T. Pettit, Ottawa, on present treatment of carcinoma.

Chicago

Fellowship in Neurology.—Dr. and Mrs. William H. Wilder, Sr., have established the William H. Wilder, Jr., fellowship in neurology at the University of Chicago, in memory of their son, a student in neurology at the university, who was drowned last summer. The fellowship is to be awarded to a student of neurology nominated by the department of anatomy on recommendation of the professors in charge of neuroanatomy and clinical neurology. Mr. Paul G. Roofe has been appointed the first recipient of this fellowship.

Surgeon General Guest of Honor.—Dr. Robert U. Patterson, surgeon general, U. S. Army, Washington, D. C., will be guest of honor and principal speaker at the annual meeting and dinner of the Medical Department Sub-Chapter, Cook County Chapter, Reserve Officers' Association of the United States in the Drake Hotel, January 6. Other guests of honor will include Major Gen. Frank Parker; Col. Paul C. Hutton, surgeon, sixth corps area; Dr. Arthur D. Black, dean, Northwestern University Dental College; Dr. William H. G. Logan, dean, Chicago College of Dental Surgery, and Dr. Morris Fishbein, editor of The Journal. All medical reserve officers of the sixth corps area, which includes Michigan, Wisconsin and Illinois, are invited to the dinner.

Society News.—At the middle section meeting of the American Laryngological, Rhinological and Otological Society, January 5, the speakers will include Drs. Edward H. Cary, Dallas, Texas, on "The Future of Private Otolaryngological Practice"; Chevalier Jackson, Philadelphia, "Pins at the Periphery of the Lung"; John W. Carmack, Indianapolis, "Maxillary Sinusitis with Blood Stream Infection"; William V. Mullin, Cleveland, "Allergy"; Edmund Prince Fowler, New York, "Prevention of Deafness"; William E. Grove, Milwaukee, "Brain Abscess with Peculiar Bacteriologic Findings"; Edward D. King, Cincinnati, "Nasal Plastic Surgery"; Louis E. Brown, Akron, presentation of new instruments. At a joint meeting of the Chicago Laryngological and Otological Society, Chicago Tuberculosis Society and the Chicago Medical Society, January 4, Dr. Chevalier Jackson will speak on "Suppurative Disease of the Lung Following Operations Involving the Upper Air Passages." Dr. Austin A. Hayden is chairman of arrangements for the meeting.——Dr. Hugh McCulloch, St. Louis, will address the annual meeting of Sunset Camp Service League, January 19, on "Convalescent Homes from the Medical Viewpoint."

INDIANA

Personal.—Dr. Max A. Bahr has been reappointed superintendent of the Central State Hospital, Indianapolis, for the ninth consecutive time, it is reported; Dr. Bahr has been connected with the institution for thirty-two years in various capacities.——Dr. John J. Rife, Boston, recently celebrated his ninetieth birthday; Dr. Rife is still in the active practice of medicine.

Society News.—Dr. Frank C. Walker, Indianapolis, addressed the Hendricks County Medical Society at Danville, November 20, on "Pelvic Cellulitis."——The Montgomery County Medical Society was addressed at Crawfordsville, November 19, by Dr. Mark H. Mothersill, Indianapolis, on "Recent Research in Anemias."——Dr. George Elmo Moses, Worthington, addressed the Greene County Medical Society, Linton, November 12, on constipation.——Dr. Carl A. Hedblom, Chicago, addressed the La Porte County Medical Society at Michigan City, November 19, on "Abscess of the Lung."——The fifteenth annual meeting of the Indiana Academy of Ophthalmology and Otolaryngology was held in Terre Haute, December 9; the guest speaker was Dr. Bernard J. McMahon, St. Louis, on "Progress in Histopathology and Treatment in Otolaryngology."——At a joint meeting of the Fifth District and Vigo County medical societies, November 10, in Terre Haute, Drs. Joseph H. Weinstein and James F. Spigler talked on the "Shoulders resolution," concerning hospitalization of war veterans, and "Abnormal Intestinal Rotation," respectively.——Dr. Herman M. Baker, Evansville, addressed the Gibson County Medical Society, Princeton, November 9, on "Diagnosis and Treatment of Coronary Disease."——The Floyd County Medical Society was addressed in New Albany, November 13, by Dr. Louis Wallace Frank, Louisville, Ky., on cancer.——At the November 12 meeting of the Tippecanoe County Medical Society, in Lafayette, Dr. Charles A. Elliott, Chicago, spoke on "Circulatory Failure in Acute Infectious Disease."——Dr. Cecil L. Rudesill, Indianapolis, addressed the Lawrence County Medical Society, Bedford, November 4, on "Diet in Gastro-Enterology."——At a meeting of the Indianapolis Medical Society, December 15, Dr. Palmer Findley, Omaha, spoke on "Better Obstetrics." Dr. Max A. Bahr addressed the society, December 8, on "Psychiatry in Relation to Crime." The program at the December 1 meeting consisted of case reports.——The St. Joseph County Medical Society was addressed at South Bend, November 18, among others, by Dr. Norman F. Miller, Ann Arbor, on "Bleeding During Third Trimester of Pregnancy."

MARYLAND

Portrait Presented to Faculty.—A portrait of the late Dr. Hiram Woods, Baltimore, was presented to the Medical and Chirurgical Faculty of Maryland, November 17, at a meeting of the Osler Historical Society in the faculty's building. Dr. Lewellys F. Barker made the presentation, and Dr. James M. H. Rowland, president, accepted the portrait on behalf of the medical faculty. Dr. Henry E. Sigerist, professor of the history of medicine, University of Leipzig, gave an address. Dr. Woods died in January. He was a former member of the House of Delegates of the American Medical Association and chairman of the Section on Ophthalmology.

Society News.—Dr. Russell L. Cecil, New York, addressed the annual meeting of the Baltimore City Medical Society, December 4, on "Diagnosis and Treatment of Lobar Pneumonia." Dr. Lay Martin, Baltimore, among others, addressed the society, December 17, on "Early and Late Effects of Nonspecific Protein on Duodenal and Gastric Ulcer."——The Baltimore County Medical Association was addressed at Towson, November 18, by Drs. A. Harry Finkelstein on "Childhood Type of Tuberculosis," and William A. Bridges and John E. Murphy, "Adjuncts to the Routine Treatment of Tuberculosis."——A symposium on the toxemias of pregnancy, the experimental studies in the diagnosis of pregnancy and analgesia in the practice of obstetrics formed the program at the meeting of the West Baltimore Medical Association, November 17; the speakers were Drs. Louis H. Douglass, Alan F. Guttmacher and Francis L. Badagliacca.

The De Lamar Lectures.—Following is the list of the De Lamar lectures given at Johns Hopkins University, together with the names of the speakers:

November 10: Dr. Rolla E. Dyer, acting director, National Institute of Health, Washington, D. C., "Typhus-Rocky Mountain Spotted Fever Group of Diseases."

December 1: Dr. Victor G. Heiser, associate director, International Health Division of the Rockefeller Foundation, "Disease Control and the League of Nations."

December 15: Edgar Sydenstricker, director, division of research, Milbank Memorial Fund, "Statistics of Morbidity."

January 12: Arthur I. Kendall, Dr.P.H., professor of research bacteriology, Northwestern University Medical School, "Filtrability of Bacteria."

February 15: Dr. Charles Armstrong, surgeon, U. S. Public Health Service, "Complications of Smallpox Vaccination."

March 1: William H. Taliaferro, Ph.D., professor of parasitology, University of Chicago, "Experimental Studies on Monkey Malaria."

March 8: Dr. Albert G. Love, medical corps, U. S. Army, "Some Aspects of the Vital Statistics of the United States Army and Their Value in Public Health."

MICHIGAN

Dr. Hickey's Memory Honored.—A bronze plaque in bas-relief of the late Dr. Preston M. Hickey, for many years professor of roentgenology, University of Michigan School of Medicine, Ann Arbor, was presented to the university recently. The plaque, the work of Heinz Peter, was given by the American Roentgen-Ray Society, it is reported, and the presentation was made by Dr. Leopold Jaches, New York, president of the society.

Dr. Bruce Appointed Vice President at Michigan.—The board of regents of the University of Michigan has appointed Dr. James D. Bruce vice president in charge of university relations. This is a newly created position, in which Dr. Bruce's duties will be to centralize all requests made to the university for outside aid and help in meeting them so far as the university's resources allow. Dr. Bruce for the last three years has been director of the department of postgraduate medicine.

Medical Society to Have New Home.—The Wayne County Medical Society recently leased the David Whitney house at Woodward and Canfield avenues, Detroit, and plans to occupy it as new headquarters before January 1, it is reported. The society has been in its present quarters in the Maccabees Building for five years. For the present, only the first two floors and the basement in the new headquarters will be used, but plans for later expansion call for the occupancy of the entire building, it was stated.

Farrell, "Mechanism of Prostatic Obstruction," and Joseph F. McCarthy, "Newer Conceptions in the Management of Prostatic Bars and Hypertrophies."——A symposium on surgery was presented before the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists, December 18, by Drs. William S. Bainbridge, on surgery of the uterus; Eugene H. Pool, the spleen; Howard Lilienthal, the lungs, and Leo Winter, D.D.S., the jaw.——Dr. Hugh H. Young, Baltimore, addressed the Ocean Medical Society, Brooklyn, December 21, on "Problems in Diagnosis and Treatment of Prostatic Diseases."——Drs. Leo M. Davidoff and Maximilian A. Goldzieher addressed the Bronx County Medical Society, December 16, on "Disease of the Pituitary with Special Reference to Tumors" and "Rôle of the Adrenals in Health and Disease," respectively.

OHIO

Hospital News.—A. O. Fonkalsrud, Ph.D., formerly superintendent of the Sioux Valley Hospital, Sioux Falls, S. D., has assumed the superintendency of the Mansfield General Hospital.

Annual Public Health Lectures.—The Cleveland Academy of Medicine has begun its second annual series of public health lectures under the Health Education Foundation initiated last April (The Journal, April 11, p. 1240). Dr. Elliott C. Cutler, professor of surgery, Western Reserve University School of Medicine, Cleveland, delivered the first lecture, December 6, on "What Science Knows About Cancer." The second will be given, January 17, by Dr. Henry J. Gerstenberger, professor of pediatrics at Western Reserve, on "Why Think About Eating?" and the third, March 20, by Dr. Roy W. Scott, professor of clinical medicine at Western Reserve, on "Fighting Death After ,Forty." In addition to these, a secondary group of lectures will be presented before smaller audiences in outlying sections of the city. Dr. Harry L. Rockwood gave the first of these, December 10, on "Stemming the Tide with Preventive Medicine." A second will be given, January 15, by Dr. Harry V. Paryzek, on "Keeping Well."

Society News.—A symposium on nephritis was presented by Drs. Clinton D. Fife and Michael R. Haley before the Montgomery County Medical Society, Dayton, December 4.——Dr. A. Graeme Mitchell, Cincinnati, addressed the Mahoning County Medical Society, Youngstown, November 17, on "Practical Application of Principles of Nutrition."——Drs. Norris W. Gillette and August H. Schade, Toledo, addressed the Allen County Medical Society, Lima, November 17, on treatment and pathology of goiter, respectively.——Speakers before the Wood County Medical Society, Bowling Green, November 19, were Toledo physicians: Drs. Elmer C. Unckrich on "Infections of the Upper Air Passages"; Alfred P. Hancuff, "Pneumonia Empyema," and Frank B. McNierney, "Infections of the Urinary Tract."——Dr. John Alexander, Ann Arbor, Mich., addressed the Academy of Medicine of Cincinnati, December 7, on "Changing Status of the Surgical Treatment of Pulmonary Tuberculosis." Dr. Austin A. Hayden, Chicago, addressed the academy jointly with the Cincinnati Oto-Laryngological Society and the Cincinnati League for the Hard of Hearing, December 1, as a feature of "Conservation of Hearing Week."——Dr. Charles E. Hauser addressed the Cincinnati Obstetrical Society, December 10, on roentgen-ray diagnosis in gynecology.——Nathan Sinai, Dr.P.H., Ann Arbor, Mich., addressed the annual joint meeting of the Toledo Dental Society and the Toledo Academy of Medicine, December 4, on "The Way of Health Insurance."——Henry F. Vaughan, Dr.P.H., Detroit, addressed the annual meeting of the Academy of Medicine of Cleveland, December 18, on "The Doctor's Practice in the Future."

RHODE ISLAND

Society News.—Speakers at the monthly meeting of the Providence Medical Association, December 7, were Drs. Anthony Corvese, on. "Acute Perforation of Peptic Ulcer"; Howard K. Turner, "Seminal Vesicles as Foci of Infection" and William A. Horan, "Treatment of Fractures at the Hip Joint."

Dr. Chapin Retires.—Dr. Charles Value Chapin, superintendent of health of Providence since 1884, will retire from active service, January 4. Dr. Chapin was born in Providence nearly seventy-six years ago and received his academic degree from Brown University in 1876 and his medical degree from Bellevue Hospital Medical College, New York, in 1879. He has held teaching positions at Brown, Harvard University Medical School and Massachusetts Institute of Technology. He was awarded the Marcellus Hartley Gold Medal by the National Academy of Sciences in 1928 and was the first recipient of the Sedgwick Memorial Medal of the American Public Health Association. In 1927 he was president of the American Public Health Association. Dr. Chapin has served also as president of the Rhode Island Medical Society and the Providence Medical Association, and was the first president of the American Epidemiological Association. He is the author of numerous works on public health and sanitation and has been a frequent contributor to the literature of public health. The Providence Medical Association at its meeting, December 3, adopted a resolution in which tribute was paid to Dr. Chapin's long and distinguished service. The resolution declares that his greatest achievements lie in his own city, "first, in lifting Providence from a condition of well nigh medieval squalor in 1884 to the hygienic and sanitary perfection of today, and, second, in the founding of our city hospital and its later organization, in which he played so important a part." The resolution continues, "In the world his outstanding contribution to mankind is the revolutionary development of medical asepsis with its application to the control of contagious diseases."

WISCONSIN

Society News.—Members of the Green County Medical Society were addressed, November 10, at Monroe, by Drs. Erwin R. Schmidt on "Surgery of the Breasts"; Ira R. Sisk, "Surgical Injuries of the Ureter," and John W. Harris, "Cancer of the Uterus." All speakers are members of the faculty of the University of Wisconsin Medical School, Madison.——The Wisconsin Urological Society met, December 4-5, in Milwaukee. The program included a symposium on injuries of the urinary tract, with the following speakers: Drs. Robert S. Irwin, Wauwatosa; George H. Ewell, Madison; Walter G. Sexton, Marshfield, and Ira R. Sisk, Madison. Other addresses were made by Drs. Russell D. Herrold, Chicago, on "Debatable Questions in the Management of Gonorrhea in the Male"; Maurice J. Reuter, Milwaukee, "Additions to the Treatment of Syphilis in the Last Decade"; Edward L. Miloslavich, Milwaukee, "Pathology of Bladder Tumors," and Herman L. Kretschmer, Chicago, on "Treatment of Bladder Tumors."——Dr. Irving S. Cutter, Chicago, addressed the Medical Society of Milwaukee County, Milwaukee, December 10, on "The Future of the Practice of Medicine."——Dr. Henry K. Pancoast, Philadelphia, addressed the Roentgen Ray Society of Milwaukee, November 20, on pneumoconiosis.

GENERAL

Simmons an Octogenarian.—Dr. George H. Simmons, Editor and General Manager Emeritus of the American Medical Association, who is wintering at his home in Hollywood, Fla., celebrates his eightieth birthday, Saturday, January 2, 1932. The felicitations of organized medicine are tendered him on this occasion.

Bequests and Donations.—The following bequests and donations have recently been announced:

Neurological Institute of the City of New York, $5,000 by the will of the late Mrs. Minnie E. Young.

Brooklyn Hospital, $50,000 under the newly filed will of the late Warren S. M. Mead.

Burlington County Hospital, Mount Holly, N. J., $10,000 by the will of Mrs. Laura Gaskill Crowell, to found the R. Herbert Crowell Memorial Fund; $25,000 more will revert to this fund after the death of heirs who are to receive the interest from it during their lives; 60 per cent of the estate remaining after deduction of numerous bequests is also to be added to the hospital fund.

Temple University Hospital, Philadelphia, $5,000 by the will of the late Mrs. Flora Mae Albright

St. Luke's and Children's Homeopathic and Babies' hospitals, Philadelphia, $50,000 by the will of John Abbot Maguire.

Memorial Hospital, Roxborough, Philadelphia, $2,000 by the will of Mrs. Augusta B. Krook.

Control of Milk Supplies.—During the eight years' existence of the U. S. Public Health Service's milk program, 444 cities, located in 25 states, have adopted it in a coordinated attempt to improve and unify milk control methods in the country. "Before and after" surveys were recently made of the milk sanitation conditions of 152 of the 444 cities. These surveys disclosed that the raw milk supplies of the 152 cities showed a rating of compliance with the grade A raw milk requirements of the public health service milk ordinance of 64 per cent before the adoption of the ordinance, and 91 per cent after periods of enforcement ranging from several months to six years. The pasteurized milk supplies of the same group showed a rating of compliance with the grade A pasteurized milk requirements of 62 per cent before the adoption of the ordinance and 87 per cent after its adoption. The proportion some. Six months later he proved that the tsetse fly was the carrier of the trypanosome. He was the first to show that an insect may carry a protozoan parasite and thus be a source of disease. He studied nagana in a large number of domestic animals and in its latent form in wild animals, leaving little to be added by subsequent observers. In 1903 he was sent by the Royal Society to Uganda to make further investigations into trypanosomiasis, which at the time was being investigated by Castellani. This observer had found a trypanosome in a small number of cases. Bruce at once grasped the situation and stimulated a rapid extension of the observations until evidence was obtained that the organism was the cause of the disease. Later he showed that the tsetse fly, Glossina palpalis, is the carrier of the trypanosome and that the distribution of the former corresponded to that of the disease. During the war he was chairman of the committee on tetanus, which showed the importance of prophylactic injection of antitoxin. He was later chairman of the trench fever committee, when Colonel Byam made the important discovery that the disease is transmitted through the skin by the excreta of the louse. An Australian by birth, Sir David was educated at Edinburgh University and joined the army medical service in 1883. He was assistant professor of pathology at the Army Medical School from 1889 to 1894. He edited the *Journal of the Royal Army Medical Corps* from 1904 to 1908. Many honors were conferred on him, including honorary degrees from the Universities of Glasgow, Dublin, Liverpool and Toronto, and, greatest of all, the fellowship of the Royal Society, which also awarded him a Royal and a Buchanan medal.

Rabies Conveyed by Bats

A mysterious disease which resulted in the deaths of human beings and animals has been reported from southern Trinidad. In his official report to the legislative council, the medical inspector of health, Dr. C. F. Lassale, states that twenty persons died between 1929 and 1931 from an unusual type of ascending transverse myelitis. Dr. Hurst, bacteriologist of the Lister Institute, considers that the disease is due to the virus of rabies of a hitherto unknown type. All the recognized cases were fatal. The report also states that man probably acquired the disease from some biting animal which itself suffers from rabies, but that the animal is not the dog, since the last case of canine rabies occurred in 1914. It was suggested that bats might be concerned in producing the disease in man and in animals. Since this report was issued, Dr. Pawan, the government bacteriologist, has declared that he has found typical rabies lesions in the brain of a Sangre Grande daylight bat.

The Attempt to Alter the Constitution of the Royal College of Surgeons

At the annual meeting of fellows and members of the Royal College of Surgeons the resolution asking for representation of members on the council was brought forward for the forty-third time. The nature of this agitation has been described in a previous letter (The Journal, February 14, p. 541). This year the resolution was moved by Sir Ernest Graham Little, dermatologist and member of parliament for London University. He pointed out that the college contained 2,000 fellows and 18,000 members; that the governing body, the council, was elected entirely by the fellows, and that no fellow in general practice had been elected. The motion was carried by 32 votes to 3. The president, Lord Moynihan, admitted that the resolution had been supported by very fair speaking, but as the council was doing its duty sincerely in the interests of the whole college he could not offer any hope of the representation desired. By permission of the president a member, Dr. T. Wilson Parry, made a long statement which had received the support of the Society of Members. He thought that some members of the council not unnaturally felt that the proposed representation might involve some disaster to the college. To reassure them he suggested that the members should be permitted to elect one fellow who was a general practitioner and one member also in general practice to represent them on the council, thus safeguarding the traditions of the college at the initial step. Dr. Parry referred to Robert Waring Darwin, the father of Charles Darwin and the great-grandfather of more fellows of the Royal Society than exist in any other family; Jenner, the discoverer of vaccination, and James Mackenzie, the founder of modern cardiology, who were all general practitioners. But these interesting facts are as irrelevant as the usual ground of "justice," on which the members' demand is usually based. The college is a scientific and educational body governed by the eminent men of British surgery elected by all its constituents who are surgeons in the full sense of the term. Its government is beyond criticism. The agitation is not inspired by any desire or capacity to improve the functions now so well discharged but rather to drag the college into medical politics.

New Heart Department at the London Hospital

The Heart Department at the London Hospital was originally created for Sir James Mackenzie. It has now been given a new building at a cost of $31,000. There is a tablet recording the fact that it is a memorial to the work of Sir James Mackenzie. At the opening ceremony, Dr. John Parkinson, physician in charge of the department, said that Mackenzie was universally recognized as the founder of modern cardiology. As long ago as 1913 the department had its beds, clinic and laboratory. The London Hospital was the first of the general hospitals in the world to arrange such a special department for the advancement of this great branch of medicine. Other hospitals had followed, and advance in knowledge and practice had been accelerated.

PARIS

(From Our Regular Correspondent)

Nov. 11, 1931.

Recurrent Fever Substituted for Malaria in Treatment of Dementia Paralytica

Mr. Auguste Marie, who was one of the first in France to treat dementia paralytica by inoculation with malaria, is endeavoring to substitute for the plasmodium of malaria the spirillum of recurrent fever, which provokes the same manifestations of hyperthermia, and he has recently communicated to the Academy of Medicine the results of his observations. He presents this method rather as supplementary to the malaria method. The results obtained were less sure; but recurrent fever therapy appears to him indicated in some instances when malariotherapy is not applicable; for example, in persons who had malaria in childhood, or in dementia paralytica in which malaria has been employed but which shows a recrudescence. In such cases, attempts to reinoculate malaria often fail. To get around immunity that might be a contraindication to reinoculations of recurrent fever, it is sufficient to alternate the different varieties (induced by various organisms: Spirochaeta duttoni, Spirochaeta berbera, and others), including the Spanish type. Recurrent fever has the advantage over malaria that the incubation is shorter, being only from three to five days in place of about twelve days. Recurrentotherapy should be supplemented by treatment combining arsenic, bismuth or mercury compounds. Of a total of 51 patients treated with recurrent fever, 18 were dismissed with a remission more or less complete and permanent; 16 were physically restored but had to be retained in the hospital. Seventeen patients died, ten of them during the first months that followed the inoculation, and the others after a partial remission. The average age of the patients who were dismissed following more or less complete remissions was 35;

Heart Sounds," and demonstrated sound images of various typical heart sound manifestations and explained their diagnostic importance for bedside practice. Harmonious course of vibrations in a heart tone is characteristic of indurative processes in the vicinity of the site of auscultation, since only tissues with a certain hardness are capable of vibration and can produce a periodic frequency course. For mitral stenosis the wavelike character of the first heart tone is typical. The diastolic murmur in mitral stenosis is registered throughout the whole diastole, although it is usually perceptible in auscultation only during the presystole. All endocardiac murmurs have their chief components in the narrow range between 200 and 400 Hertz units. The Weber theory of the origin of murmurs receives new support from this fact. By reason of the similarity of the sound curves of endocardiac murmurs, one cannot draw from the sound picture any important differential diagnostic conclusions as to their origin. Paracardiac murmurs may, however, be distinctly differentiated from endocardiac murmurs by the greater frequency of interruption of the current as revealed by the course of the curve. The reproduction through loud speakers of heart sounds encounters difficulties, since through marked amplification of sounds subliminal components rise above the auditory threshold and change the nature of the sound. A reproducing apparatus that will overcome this disadvantage will be of inestimable value for clinical instruction.

Finally, the physicist Dr. Sell, who has devoted himself to acoustic problems, explained that a diaphragm which is highly sensitive to body sounds but less sensitive to air sounds, and which possesses a high degree of flexibility, is best adapted to this purpose. If attention is paid to this, no great amplification is necessary. A special loud speaker sensitive to low ranges was constructed. Normal heart tones and heart murmurs become audible, with the new apparatus, for a good-sized audience.

Medical Service on Sunday

For a number of years, the city of Berlin has had not only a special Sunday service as regards the pharmacies but also a special service for urgent medical cases on Sunday. For this purpose, the city is divided into fifty districts, each of which submits, with the opening of each three-month period, a list of physicians who have agreed to perform Sunday duty during the quarter in question. At first, this list lay open for inspection only at the pharmacies, but, later, copies were posted also at the police stations. Now, however, the matter has been further simplified for the public. At the suggestion of the medical league of Greater Berlin, the government telephone service has consented, in response to telephone calls on Sunday, to give the applicant the name of the nearest physician.

Gymnastic Exercise for Women

Gymnastic exercise for women was recently discussed by Professor Sellheim, director of the Leipzig Universitäts-Frauenklinik. In dealing with men, aside from considerations of age, we have to do with only one kind of physical makeup and one mode of functioning of the organism all through life, and can arrange for the strengthening of the physique and for the preservation of robustness by gymnastic exercises by applying what is essentially the same prescription. In dealing with women, one must, in prescribing physical exercises, differentiate precisely between the various types of women with reference to build and the mode of functioning of the organism at the time in question, and only by taking careful account of these differences can one hope to reap the advantages of gymnastic exercise. From the standpoint of gymnastics, eight classes of women must be recognized: (1) the girl approaching puberty and during the years immediately following; (2) the woman during the period of menstruation; (3) the woman during pregnancy; (4) the woman during the puerperium; (5) the woman after cessation of the special functions of the matron and of old age; (6) the woman who is deprived of the privilege of propagation; (7) the woman whose constitution has been undermined by giving birth to too many children, possibly in association with occupational work (these two classes being especially characteristic of the times in which we live), and, finally, (8) the woman with abdominal disease. Specially prescribed gymnastics are more important for women than for men. The more the value of gymnastics comes to be recognized by physicians and the general public, the greater becomes the responsibility of the physician for the sins of omission and commission in this field. There is danger that here the physician may be charged with neglect, and that in case damage results an attempt may be made to hold him responsible.

AUSTRALIA

(From Our Regular Correspondent)

Nov. 4, 1931.

Hospital Finance in New South Wales

The problem of hospital finance in Australia is becoming more acute daily, and in New South Wales the situation is growing serious. The leading hospitals in Sydney, especially the Royal Prince Alfred Hospital, have been on the verge of bankruptcy for the past twelve months. In the Royal Prince Alfred Hospital it has been necessary to close 200 beds and to place many of the paid medical staff on an honorary basis. At best, the hospitals are living a hand to mouth existence in the face of greatly increased demands on their services. Nearly all the New South Wales institutions depend on large annual government subsidies, which in the past have been granted on the basis of £1 for each £1 contributed by the public. Voluntary contributions have fallen away considerably, and the government, moreover, has found it impossible to continue the subsidy, even on a reduced basis. Since the appointment of the Hospitals Commission in New South Wales, the distribution of subsidies has been under its control.

It has always been strange that hospital service should be financed in connection with gambling, but this relationship is apparently the sole remaining exploitable avenue for hospital finance in Australia, and it is being used more and more, as the economic situation becomes more difficult. For many years now in New South Wales, a percentage of the gross proceeds of the totalizers, which are found on all large race courses, has been reserved for hospitals. When funds from this source showed a falling off, the deficiency was made up by heavy taxation on all wagers made with bookmakers. In view of the fact that considerable support was given from New South Wales to a private Tasmanian lottery and to a government lottery in Queensland, the state premier this year passed an act for establishing a New South Wales state lottery in aid of hospitals. This was strenuously opposed by the council of churches, an organization composed of representatives from most of the protestant churches in New South Wales. This council recommended an appeal to church and state. The premier withheld the operation of the state lottery pending the result of this appeal. The appeal was a hopeless failure, and the state lottery has now commenced operations. Today in Sydney will be seen a queue of people a quarter of a mile long, lined up to buy their tickets at 5s. 3d. each, in the hope that they will win the first prize of £5,000. What the actual proceeds from this lottery will be can only be a matter of conjecture. Experience in Queensland, where the "Golden Casket" lottery has been run for some years, is not encouraging. As the result of the holding of twenty-six art unions, the total sum raised for hospital work has amounted to only £190,059. Of every £1 received by the "Casket," 13s. 4d. is absorbed by prizes, taxes, postage and heavy general expenses. It has been the experience in Queens-trachoma. The majority of the trachomatous patients were foreign workmen who had recently settled in the province. The authors have observed among these workmen instances of contagious transmission of the disease. Belgian workmen have likewise been contaminated by trachomatous foreigners. The trachoma cases consisted of two distinct types, depending on which country the laborers had come from. There was the Mediterranean type, which follows a grave course and leaves significant sequels, although it is only slightly contagious, and trachoma of the Orient, of an acute type, with less grave manifestations but contagious. If this recrudescence of trachoma is general throughout Belgium, it would seem to necessitate the adoption of stricter prophylactic measures at the borders. Mr. H. Coppez, who examined the foreign workmen in a coal mine at Limburg, found 25 per cent of them trachomatous. He did not find any instances of contagion among the Belgian workmen. The school children in these localities should be examined; for trachoma is transmitted chiefly during youth.

Proposed Reforms in Ophthalmologic Studies

Mr. Weekers has published a report on the result of the referendum among the members of the Société belge d'ophtalmologie concerning the proposed reforms in ophthalmologic studies. Of the seventy-one replies received, two indicated no preference, seven were opposed and sixty-two were in favor. The Société belge d'ophtalmologie passed a resolution that proper action should be taken to protect patients against grave harm resulting from the practice of ophthalmology by specialists who are insufficiently prepared. In connection with the referendum, Mr. Weekers proposed the following resolutions: (1) that a course of instruction for specialists be officially organized in the universities, and (2) that the various universities come to some understanding in regard to the organization of such a course of instruction. All physicians who desire to do so and who possess the necessary qualifications should have an opportunity to specialize. The physician should be free to choose between the schools that offer such courses as he needs. Eminent specialists who are not members of any university faculty should be afforded an opportunity to collaborate in the training of candidates for specialties, should they have a taste for instruction. In accordance with rules to be agreed on with respect to titles, a specialist should, without an examination, receive a certificate to be issued by a commission composed chiefly of university specialists, and based, as the only precondition, on a short course taken at a university clinic.

In further exemplification of his ideas, the author drew up the following statement: The specialist's certificate should be provided for by law. It will give satisfaction to all. It does not affect in any manner the diploma of the doctor of medicine. There is no constraint about it. It would bring about the elimination of incompetent specialists and would prevent patients from suffering grave injuries at the hands of physicians who are inadequately prepared for the practice of a specialty.

Marriages

Dudley H. Morris to Miss Margaret Donaldson, both of New York, in Greenwich, Conn., October 17.

Vincent W. Koch, Janesville, Wis., to Miss Ardelia R. Olden of Norwood, Pa., October 30.

Eduard Falk Poser, Chicago, to Miss Marcia Louise Bruch of Evanston, Ill., November 7.

Henry Lowey, New York, to Miss Rebecca May of Wilmington, N. C., November 8.

Joseph D. Hayden, Akron, Ohio, to Miss Constance Delaney of Cleveland, September 23.

Dwight L. Jennings to Miss Isabelle Boedeker, both of St. Louis, November 16.

Deaths

Edward Tyler Edgerly ⊕ Ottumwa, Iowa; Chicago Medical College, 1889; formerly instructor of physical diagnosis, Northwestern University Medical School, Chicago; member of the American College of Physicians; served during the World War; medical director of the Sunnyslope Sanatorium; on the staffs of St. Joseph and Ottumwa hospitals; aged 67; died, November 13, in Rochester, Minn., of cholelithiasis.

Edward Milton Pemberton, Little Rock, Ark.; Maryland Medical College, Baltimore, 1902; College of Physicians and Surgeons, Baltimore, 1903; member of the Arkansas Medical Society; formerly professor of physiology and pharmacology, University of Arkansas School of Medicine; aged 50; died suddenly, November 20.

G. Wilfrid Derome, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, 1902; professor of legal medicine, University of Montreal Faculty of Medicine; for many years head of the provincial laboratories of Quebec; aged 54; died, November 24, in L'Hospital Notre-Dame.

Hall Whiteaker ⊕ Anna, Ill.; Barnes Medical College, St. Louis, 1893; served during the World War; formerly member of the state legislature; aged 62; since 1925 on the staff of the Anna State Hospital, where he died, November 24, of acute myocarditis and carcinoma of the prostate.

R. T. Jennings, Columbia, S. C.; University of the South Medical Department, Sewanee, Tenn., 1898; member of the South Carolina Medical Association; formerly city health officer; aged 55; died, November 20, in a local hospital, of injuries received in an automobile accident.

George Graham Hart ⊕ P.A.S., Lieut., U. S. Navy, retired, Beaver Falls, Pa.; Columbia University College of Physicians and Surgeons, New York, 1902; entered the Navy in 1921 and retired in 1928 for incapacity resulting from an incident of service; aged 53; died, September 20.

Ermy Corser Noble, Mayview, Pa.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1907; member of the American Psychiatric Association and the New England Society of Psychiatry; aged 58; died, October 24, in the Randolph (Vt.) Sanatorium.

Edwin Henry Newbold, Oroville, Calif.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1893; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; aged 60; died, September 13.

Levi N. Hicks, Burlington, Wis.; Rush Medical College, Chicago, 1878; Medical Department of the University of the City of New York, 1881; member of the State Medical Society of Wisconsin; aged 80; died, November 29, of cerebral hemorrhage.

Austin N. Lakin, State Line, Ind.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1905; Illinois Medical College, Chicago, 1906; aged 64; died, November 22, in the Lakeview Hospital, Danville, Ill., of gunshot wounds.

George S. Watkins, Oxford, N. C.; University College of Medicine, Richmond, Va., 1900; member of the Medical Society of the State of North Carolina; past president of the Granville County Medical Society; aged 53; died, November 18.

George Steely, Danville, Ill.; College of Physicians and Surgeons, Boston, 1905; member of the Illinois State Medical Society and the American College of Surgeons; served during the World War; aged 52; died, November 14, in St. Elizabeth's Hospital, of hypostatic pneumonia and shock following an operation for appendicitis and gallstones.

Edward John Fucik ⊕ Williams Bay, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; president of the Walworth County Medical Society; aged 50; died, December 1.

Odeen Luke, Tremonton, Utah; University of Pennsylvania School of Medicine, Philadelphia, 1921; member of the Utah State Medical Society; aged 42; died, October 9, of a skull fracture received in an automobile accident.

John Alphonso Burnett, Hamilton, Ohio; Eclectic Medical Institute, Cincinnati, 1902; member of the Ohio State Medical Association; formerly county coroner and member of the board of education; aged 52; died, November 28.

Jesse Obed Parker ⊕ Owosso, Mich.; University of Michigan Medical School, Ann Arbor, 1899; member of the Radiological Society of North America; aged 55; died, November 30, of a self inflicted bullet wound.

tion of tuberculous allergy. All the interesting reports that have appeared on these questions are scattered in innumerable publications.

I must then believe that my book is not superfluous for American physicians, since many learned foreign and American authorities on tuberculosis, particularly Dr. W. Charles White, chairman of the Committee on Medical Research of the National Tuberculosis Association, have written to me to send a copy of my book. That will be my greatest reward.

Jean Albert-Weil, M.D., Béziers, Hérault, France.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DOSAGE OF HISTAMINE SALTS FOR TESTS OF GASTRIC ACIDITY

To the Editor:—In the *Archives of Internal Medicine* for August, in an article by Moschowitz, the gastric analysis was commented on as including "the neutral red reaction and histamine." Then in the *Archives of Internal Medicine* for September, an article by Bloomfield and Polland states that dimethyl-amino-azobenzene was used as the indicator in their work. In the pamphlet that was written by Victor C. Myers, revised in June, 1930, and sent out by the American Medical Association, the statement is made, "Although the information obtainable with the Topfer method is fairly accurate, it does not give a modern point of view." Is a difference of indicators important, and if so I should like to know the indicator that is most generally used or accepted, and the method that is considered to give the most modern point of view. I should like to know the status of the alcohol test meal at present. Is it preferable to the other test meals as a routine procedure, to be followed by an injection of histamine if at the end of thirty minutes after the alcohol meal there is no free hydrochloric acid? Is the dose of histamine standard for each person or is it still given by weight? Some assert that 0.25 mg. will provoke as much stimulation as 1 mg. Please give the accepted dosage of histamine for this use, and also the most satisfactory preparations. Please omit name.

M.D., Florida.

Answer.—The type of indicator used in gastric analysis is extremely important because the various indicators have very different ranges of acidity in which they can be used. True neutrality in water is expressed by the p_H value 7; any p_H higher than that is more alkaline than water and any p_H lower than 7 is more acid than water. Di-methyl aminobenzene solution (Töpfer's reagent) is red at p_H values of 2.9 or lower and yellow at p_H 4.0 or higher. Obviously this indicator is of value for detecting mainly relatively high acidities in the p_H range of 2.9 to 4.0. Neutral red, however, is of value only in the truly neutral range, that is, at p_H 6.8 to 8.0. In other words, very faint acidity will change the color of the neutral red solution to yellow, and will also increase the acidity. It does not distinguish between the two kinds of acidities. Di-methyl aminobenzene solution is generally applied and is useful when the acidity is measured by titration. The "modern point of view" is to determine the actual hydrogen ion concentration or p_H of the juice rather than the amount of titratable (total and free) acid. For most purposes, however, the titration method is still the more useful. There does not appear to be a distinct advantage in alcohol over the other test meals when it is used as a routine, but it appears to be fairly well established that histamine hydrochloride or phosphate injected subcutaneously frequently stimulates the secretion of hydrochloric acid when the test meal methods resulted in a diagnosis of achlorhydria. However, in true achlorhydria, the histamine does not cause the secretion of hydrochloric acid. It is of no value in cases of hyperacidity. In any case the tests should be repeated a number of times before a diagnosis is made. The greater the dose of histamine, the higher the secretion of juice and acid in normal individuals. A reasonable dosage to employ as a routine is 0.1 mg. of histamine hydrochloride to 10 Kg. of body weight. If histamine phosphate, also called ergamine acid phosphate, is used, the dosage should be increased to 0.17 mg. for each 10 Kg. of body weight. Such dosage in normal subjects produces a maximum secretion in from thirty to sixty minutes, and the secretion may extend over an hour and a half. Histamine salts may be procured from general chemical houses such as Central Scientific Company, 460 E. Ohio St., Chicago; Eimer and Amend, Third Avenue and Eighteenth Street, New York, the Eastman Kodak Company, Rochester, N. Y., or the Special Chemicals Company, Waukegan, Ill.

FLOCCULATION AND WASSERMANN TESTS—GRAM-NEGATIVE INTRACELLULAR DIPLOCOCCI

To the Editor:—What is your opinion as to the reliability of the flocculation test for syphilis as compared to the blood Wassermann test? Are there any diplococci (gram-negative and intracellular) other than gonococci; and if so, please name them. Please omit name and city.

M.D., Mississippi.

Answer.—Although there are reports in the literature of wide variations between results of Wassermann and flocculation tests, careful workers find agreement between the two classes of tests in approximately 90 to 96 per cent of cases.

Both the complement fixation and the flocculation tests are regarded as being of a physicochemical nature and not biologically specific. It is thought that both reactions are effected by the same conditions that control most colloid reactions. At present, serologists are unable to "render the factors exactly the same" in the conduct of complement fixation and flocculation tests, and for this reason serums and spinal fluids containing small amounts of syphilitic antibody may yield differing results.

The flocculation reaction is "greatly influenced by the quantitative relationship existing between the reacting substances present in the serologic system at the time the test is performed. Such relationship varies with each serum tested." Because of this, a given system may not result in a "complete and proper antigen precipitation in every case" (Levine, B. S.: *J. Lab. & Clin. Med.* **15**:985 [July] 1930).

"It would appear that the flocculation tests are more likely to yield falsely positive reactions in the hands of ordinary laboratory technicians than are the complement fixation tests, although in the hands of experts the incidence of falsely positive reactions has been remarkably low with both procedures . . . All flocculation and complement fixation tests are capable of yielding false reactions because of technical errors but the incidence of these is remarkably low in the hands of expert serologists and probably not as frequent as are the clinical errors in the diagnosis of syphilis . . . Under proper technical conditions they possess an extremely high practical specificity for syphilis in this country" (Kolmer, J. A.: *Am. J. Syph.* **15**:383 [July] 1931).

Because some serums will react at one time to a flocculation test and not to a Wassermann test, and vice versa, the two classes of tests supplement each other, and when carefully performed should show a high degree of relative agreement. It is thought that a weakly positive flocculation test is more difficult to read and to interpret than a weakly positive Wassermann reaction. A serum showing a strong positive flocculation test and a negative Wassermann reaction in a patient for diagnosis indicates the advisability of repeated tests and study of the patient.

The foregoing remarks refer more particularly to the routine test of Kahn, which is the most widely used flocculation test in this country; also to the routine Kline microscopic test and to the Hinton test. The remarks do not apply to the Kahn "presumptive test" or to the Kline "exclusion test." These two tests are too sensitive for routine use and may give false positive reactions. "There is a limit to which the delicacy of serologic procedures may be advanced without introducing the possibility of false positive reactions" (Kilduffe, R. A.: *Am. J. Clin. Path.* **1**:69 [Jan.] 1931).

The common gram-negative intracellular diplococci are the gonococcus and the meningococcus (Neisseria intracellularis or meningitidis).

According to Ford, Micrococcus catarrhalis is "occasionally intracellular in exudates" (Ford, W. W.: Textbook of Bacteriology, Philadelphia, W. B. Saunders Company, 1927, p. 380).

Ford also cites Diplococcus intracellularis-equi Johne "found by Johne in Borna's disease of horses (acute encephalitis)."

INFESTATION WITH STRONGYLOIDES INTESTINALIS

To the Editor:—I have a boy, aged 12 years, with a heavy infestation of Strongyloides stercoralis or intestinalis. I cannot find any definite reference to treatment. What would be a proper course to pursue? Please omit name.

M.D., West Virginia.

Answer.—In suggesting treatment, it is assumed that the infesting parasite is the one mentioned; i. e., Strongyloides intestinalis (stercoralis).

The following treatment should prove helpful: The patient should be given a soft, liquid, fat-free diet for three days, and each night 4 cc. (1 fluidrachm) of fluid extract of cascara sagrada in hot water. On the morning of the fourth day, the patient should remain in bed and have no breakfast. At 9 and 11 a. m. 1 Gm. (15 grains) of powdered thymol U. S. P. in 0.3 Gm. (5 grain) enteric capsules should be administered. Each hour, for five hours, the patient should take a cup of hot, weak, black, sweet coffee. At the end of that period, 0.8 Gm. (2 drachms)

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 11. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: Phoenix, Jan. 5-6. Sec., Dr. B. M. Berger, 12 North Central Ave., Phoenix.

CALIFORNIA: Los Angeles, Feb. 1-4. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, Jan. 5. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, Feb. 13. Prerequisite to license examination. Address, State Board of Healing Arts, 1895 Yale Station, New Haven.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Dec. 29-30. *Regular.* Washington, Jan. 11. Sec., Dr. W. C. Fowler, District Bldg., Washington.

HAWAII: Honolulu, Jan. 11-14. Sec., Dr. James A. Morgan, Room 48, Young Bldg., Honolulu.

ILLINOIS: Chicago, Jan. 12-14. Supt., Mr. Paul B. Johnson, Springfield.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 5-6. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, Jan. 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Medical Arts Bldg., St. Paul.

NEBRASKA: *Basic Science.* Lincoln, Jan. 12-13. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NEVADA: *Reciprocity.* Carson City, Feb. 1. Sec., Dr. Edward E. Hamer, Carson City.

NEW YORK: Albany, Buffalo, New York, Syracuse, Feb. 1-4. Chief, Mr. Herbert J. Hamilton, Room 315, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, Grand Forks.

OREGON: Portland, Jan. 5-7. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 5-9. Sec., Mr. Charles D. Koch, Harrisburg.

RHODE ISLAND: Providence, Jan. 7-8. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

SOUTH DAKOTA: The St. Charles Hotel, Pierre, Jan. 19-20. Dir., Dr. H. R. Kenaston, Bonesteel.

VERMONT: Burlington, Feb. 9-11. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: *Basic Science.* Seattle, Jan. 14-15. *Regular.* Seattle, Jan. 18-19. Dir., Mr. Charles Maybury, Olympia.

WISCONSIN: Madison, Jan. 12-14. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

WYOMING: Cheyenne, Feb. 1. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Pennsylvania July Examination

Mr. Charles D. Koch, secretary, Pennsylvania State Board of Medical Education and Licensure, reports the examination held at Philadelphia and Pittsburgh, July 7-11, 1931. Three hundred and seventy-nine candidates were examined, 373 of whom passed and 6 failed. The following colleges were represented:

PASSED

College	Year Grad.	Number Passed
Yale University School of Medicine	(1929), (1930)	2
Georgetown University School of Medicine	(1930, 15), (1931)	16
George Washington University Medical School	(1930, 3)	3
Howard University School of Medicine	(1930, 5)	5
University of Georgia Medical Department	(1928)	1
Loyola University School of Medicine	(1931, 3)	3
Northwestern University Medical School	(1931, 2)	2
Rush Medical College	(1930), (1931)	2
University of Illinois College of Medicine	(1931)	1
Indiana University School of Medicine	(1930)	1
University of Louisville School of Medicine	(1930, 3)	3
Tulane Univ. of Louisiana School of Med.	(1926), (1929)	2
Johns Hopkins University School of Medicine	(1930)	1
University of Maryland School of Medicine and College of Physicians and Surgeons	(1915), (1930, 2)	3
Harvard University Medical School	(1929), (1930, 2)	3
Tufts College Medical School	(1930, 3)	3
University of Michigan Homeopathic Medical School	(1909)	1
University of Michigan Medical School	(1923), (1930, 4)	5
St. Louis University School of Medicine	(1930, 3)	3
Washington University School of Medicine	(1926), (1930)	2
Albany Medical College	(1930)	1
Long Island College Hospital	(1896), (1928)	2
University and Bellevue Hospital Medical College	(1930, 2)	2
University of Buffalo School of Med.	(1911), (1923), (1930, 2)	4
University of Rochester School of Medicine	(1929)	1
Ohio State University College of Medicine	(1930)	1
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1930, 41)	41
Jefferson Medical College of Philadelphia	(1922), (1928, 2), (1929, 19), (1930, 54)	76
Temple University School of Medicine	(1929, 5), (1930, 35)	40
University of [illegible]	(1927), (1928), (192[illegible]	72
University of [illegible]	[illegible]930, 55)	56
Woman's Medi[illegible]	[illegible]1930, 3)	4
Medical Colleg[illegible]	(1928)	2
Vanderbilt Un[illegible]	(1930)	1
University of [illegible]	(1930)	1
Medical College of [illegible]	[illegible] (1930)	2
Queen's University [illegible]	(1927)	1
McGill University [illegible]	(1927)	1
Royal University of Naples Faculty of Medicine and Surgery	(1924), (1928)*	2
University of Edinburgh Faculty of Medicine	(1930)*	1

FAILED

College	Year Grad.	Number Failed
Howard University School of Medicine	(1930)	1
Harvard University Medical School	(1929)	1
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1930, 2)	2
Temple University School of Medicine	(1930)	1
University of Pennsylvania School of Medicine	(1930)	1

Mr. Koch also reports 24 physicians licensed by reciprocity with other states and 6 physicians licensed by the endorsement of credentials from April 16 to Aug. 26, 1931. The following colleges were represented:

LICENSED BY RECIPROCITY

College	Year Grad.	Reciprocity with
Stanford University School of Medicine	(1925)	California
Colorado School of Medicine	(1906)	Colorado
Georgetown University School of Medicine	(1928) (1929)	Dist. Colum. New Jersey
Loyola University School of Medicine	(1925), (1930)	Illinois
University of Maryland School of Medicine and College of Physicians and Surgeons	(1927)	Maryland, New York
Tufts College Medical School	(1916)	Maine
University of Michigan Medical School	(1926, 2) (1928)	Minnesota, Michigan
University of Nebraska College of Medicine	(1928)	Illinois
Ohio State University College of Medicine	(1919)	Ohio
University of Cincinnati College of Medicine	(1929)	Ohio
Hahnemann Med. College and Hosp. of Philadelphia	(1929) (1930)	New Jersey, Delaware
Jefferson Medical College of Philadelphia	(1923) (1929)	New Jersey, Nebraska
University of Pennsylvania Department of Medicine	(1901)	Virginia
University of Pennsylvania School of Medicine	(1928, 2)	N. Carolina
University of Texas School of Medicine	(1917)	Texas
University of Wisconsin Medical School	(1927)	Michigan

LICENSED BY ENDORSEMENT

College	Year Grad.	Endorsement of
Rush Medical College	(1930)	N. B. M. Ex.
Johns Hopkins University School of Medicine	(1928)	N. B. M. Ex.
Harvard University Medical School	(1930)	N. B. M. Ex.
Jefferson Medical College of Philadelphia	(1927)	N. B. M. Ex.
University of Pennsylvania School of Medicine	(1929)	N. B. M. Ex.
Woman's Medical College of Pennsylvania	(1929)	N. B. M. Ex.

* Verification of graduation in process.

Book Notices

Selected Writings of John Hughlings Jackson. Volume I: On Epilepsy and Epileptiform Convulsions. Edited for the Guarantors of "Brain," by James Taylor, M.D., F.R.C.P., with the advice and assistance of Gordon Holmes, M.D., F.R.C.P., and F. M. R. Walshe, M.D., F.R.C.P. Cloth. Price, 25/-. Pp. 500. London: Hodder & Stoughton, Ltd., 1931.

Probably the number of neurologists who think and of those who care to know of the evolution of neurologic knowledge will be fairly indicated by the extent of the sale of this volume and of the one to follow; for no thinking neurologist can afford to be without this work and no one interested in the history of his chosen specialty will want to miss it. The papers composing the present volume concern epilepsy and epileptiform convulsions. The book contains such a mass of information that detailed review is out of the question, but no physician can read it without learning a multitude of things, besides enjoying a scientific banquet of neurologic knowledge. Any one of several chapters (on study of convulsions, on the scientific and empiric investigation of epilepsy, on convulsive seizures, on temporary paralysis after seizures) will richly repay the purchaser. In truth, one cannot be fully informed on epilepsy without study of Dr. Jackson's principal papers. For instance, the three (Harveian) lectures on the diagnosis of epilepsy are more, much more, than directions on how to detect epilepsies and to distinguish them from other conditions. They embrace a fascinating and illuminating discussion of the nature of the symptoms, a graphic description of different types, a philosophical consideration of the physiology and pathology of fits, and illustrative examples, with sage remarks based on the wide experience of an acute observer. Dr. Jackson, we fear, is known to most physicians only for the one type of epilepsy named for him, but the wide range of his meticulous observations, the clarity of his reasoning and the broad scope of his conclusions may well serve as a model and an inspiration alike to practitioner and to savant. With infinite patience and tact he constantly strove at the impossible task of teaching others to observe and to think as he did. His exposition of the logical approach and further procedure in the study of any case is not to be improved on; it is valuable equally to clinician and to research worker.

Medicolegal

Power of Workmen's Compensation Commissioner to Punish for Contempt

(In re Hayes (N. C.), 156 S. E. 791)

On March 3, 1930, Dr. R. B. Hayes was present as a witness before the chairman of the North Carolina industrial commission. He had professionally attended the claimant, who was seeking compensation. Dr. Hayes had been sworn and had testified on both direct and cross examination. The chairman of the commission then asked Dr. Hayes whether he had an opinion as to whether or not a blow received by the claimant on October 19 would have produced a paralytic stroke on January 12. Dr. Hayes admitted that he had an opinion, but he refused to express it unless he received compensation as an expert. Section 3893 of the Consolidated Statutes provides that experts, when compelled to attend and testify as witnesses, shall be allowed such compensation and mileage as the court in its discretion may allow. The chairman of the commission, however, maintained that it was not up to him to qualify Dr. Hayes as an expert and committed him to jail for contempt of what the chairman described as "the Court." Dr. Hayes sought to obtain his release through a writ of habeas corpus, but failed. Thereupon he obtained a writ of certiorari for a review of the case by the Supreme Court of North Carolina.

Power is expressly conferred by the statute creating the North Carolina industrial commission, said the Supreme Court, for that commission or any member of it to subpena witnesses to attend and testify at a hearing before the full commission or before any member, and the statute provides that "the superior court shall, on application of the commission or any member or deputy thereof, enforce by proper proceedings the attendance and testimony of witnesses and the production and examination of books, papers and records." This provision that the legislature had made for enforcement by the superior court of the attendance and testimony of witnesses and the production and examination of books, papers and records, however, the Supreme Court thought was not adequate for a situation such as that presented in the present case. If a witness in attendance at a hearing, after having been duly sworn, can with impunity refuse to answer a question propounded to him which is pertinent to the matters in dispute between the parties, then, the Supreme Court thought, the industrial commission would be without adequate power to perform its duties. Since the legislature in providing the commission with the aid of the superior court in enforcing the attendance and testimony of witnesses did not in express terms—nor, in the opinion of the Supreme Court, by implication—deny to the commission or any member thereof the power to compel a witness in attendance at a hearing, after having been duly sworn, to testify, the court, without deciding whether the North Carolina industrial commission was or was not a court, and without citing any statutory authority or judicial precedent in support of its opinion, concluded that the commission or any of its members has the power to adjudge a witness in contempt who has deliberately and persistently refused to answer a question propounded to him and to punish such witness by fine or imprisonment. The judgment of the industrial commissioner was therefore affirmed.

The question raised by Dr. Hayes at the hearing before the chairman of the industrial commission, said the Supreme Court, when he refused to answer the question addressed to him because it was addressed to him as an expert and he had not been paid as an expert nor assured that he would be so paid, was not presented to the Supreme Court for decision and had not been decided by that court. It has been held in a few courts that a witness who has been summoned as an expert in a judicial investigation cannot be adjudged in contempt for refusing to give such testimony unless he has been compensated for his professional opinion. The better opinion, however, said the Supreme Court of North Carolina, is that an expert summoned to testify, who refuses to answer questions "without compensation other than his witness fees," is in contempt, and when an expert voluntarily submits himself to an examination as such, he can in no case refuse to answer one particular question after having without objection answered others.

Evidence: Admissibility of Physician's Office Records.—The appellee, Dennis Bisimanis, based his suit on double hernias, which he claimed were caused by his having been negligently struck by the defendants, with an automobile, Oct. 30, 1929. The case was tried, Jan. 30, 1930, and judgment given in favor of Bisimanis. Thereafter the defendants learned that some time before the date of the alleged accident a physician had found that Bisimanis was then suffering from double hernias. They then moved for a new trial, on the ground of newly discovered evidence. In connection with that motion, it was stipulated between counsel for Bisimanis and counsel for the defendants that a certain physician, if he were present and testifying on the motion, would testify that the records in his office showed that he examined one Dennis Bisimanis in his office, March 25, 1929, and found that he was suffering from double hernia, and that he advised an operation, but that the physician had no recollection of the matter independent of his office records. A rehearing was denied, and the defendants appealed to the Supreme Court of Alabama. On behalf of Bisimanis it was argued that neither the hospital [sic] records nor their contents were evidence of the facts. But, said the Supreme Court, these records, under the well settled rules of the court, were admissible on proof that the witness knew the facts when the records were made, knows that the records show the true facts, and now has no independent recollection. The cause was remanded for a new trial.—*Ohme v. Bisimanis (Ala.), 132 So. 161.*

Lymphatic Leukemia Attributed to Trauma.—The cause of lymphatic leukemia is not known to medical science. It cannot be inferred, however, from the facts that the plaintiff was well and able to work up to the time of an injury and after the injury was found to be suffering from lymphatic leukemia, that the injury caused the disease. If the disease was caused or aggravated by the injury, the plaintiff must establish that fact by a fair preponderance of evidence.—*Boyer v. Department of Labor and Industries (Wash.), 295 P. 737.*

Workmen's Compensation Acts: Compensability of Carbon Monoxide Poisoning.—The death of a workman in a mine from the inhalation of carbon monoxide in the course of his employment was, in the opinion of the court of appeals of Ohio, Carroll County, due to an "accidental injury" within the meaning of the Ohio compensation act, and not to an occupational disease.—*Industrial Commission of Ohio v. Tolson (Ohio), 174 N. E. 622.*

Privileged Communications: Waiver by Offering Testimony of Physician.—Where a party to an action puts his physician on the stand to prove that the party was incompetent to make a certain contract, he thereby waives his statutory privilege of maintaining the secrecy of communications between him and his physician. The adverse party may thereafter cross-examine the physician.—*Travelers' Building and Loan Ass'n. v. Hawkins (Ark.), 34 S. W. (2d) 474.*

Compensation of Physicians: Liability of Member of Family Who Summons Physician.—It is a general proposition supported by many authorities that he who orders a physician to come to his home to treat a member of his family becomes responsible for payment for the physician's services unless he makes it known to the physician that he disavows responsibility.—*Benton v. Stadler (Wis.), 234 N. W. 739.*

Society Proceedings

COMING MEETINGS

Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, February 15-16. Dr. William D. Cutter, Secretary, Council on Medical Education and Hospitals, 535 North Dearborn St., Chicago.

Mid-South Post-Graduate Medical Association, Memphis, Tenn., February 9-12. Dr. A. F. Cooper, Bank of Commerce Building, Memphis, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

teristics: persistence, fixity in the constitution of the person, disadvantageousness, incorrigibility, short-sightedness, basally defective affect, and a tendency to slip into psychosis or psychoneurosis. Psychopaths are abnormal and usually require institutional control. If no psychotic or psychoneurotic process is present, they should be disciplined for law breaking. If wise discipline has proved ineffectual after two or three applications, the offending psychopath should be permanently restrained in a proper state institution.

Kentucky Medical Journal, Bowling Green

29: 575-616 (Nov.) 1931

Unusually Extensive Fecal Fistula. A. O. Taylor, Maysville.—p. 589.
*Torsion of Normal Ovary and Tube with Rupture of Ovary: Review of All Literature to Date. J. D. Northcutt and C. Baron, Covington.—p. 590.
Spontaneous Expulsion of Uterine Fibroid. K. W. Brumback, Cynthiana.—p. 592.
An Atypical Case of Ruptured Subphrenic Abscess. E. F. Sheppard, Jenkins.—p. 593.
Poisoning by Wild Parsnip (Hemlock). L. L. Terrell, Corbin.—p. 595.
Diagnosis and Treatment of Latent Syphilis. C. B. Willmott, Louisville.—p. 596.
Secondary Anemias of Childhood. J. W. Bruce, Louisville.—p. 599.
Germs. J. Martin, Cynthiana.—p. 601.
Are Doctors Responsible for High Cost of Illness? W. F. Peebles, Clinton.—p. 602.
Pathogenesis of Exophthalmic Goiter. V. E. Simpson, Louisville.—p. 603.
Cervical Lacerations and Infections. W. O. Johnson, Louisville.—p. 607.
Puerperal Eclampsia and Conservative Treatment. D. L. Jones, Fulton.—p. 610.
Health Units, Group Practice and Community Hospitals as Remedy for Scarcity of Physicians in Rural Districts. R. C. Burrow, Cunningham.—p. 612.

Torsion of Normal Ovary and Tube with Rupture of Ovary.—Northcutt and Baron report a case of torsion of the normal ovary and tube with rupture of the ovary. They believe that this is the fourteenth case on record in which the ovary was involved and that it is the first case on record in which rupture followed the torsion. In the differential diagnosis of abdominal pain in young girls, torsion of the ovary must be considered, particularly when associated with pain on straining at stool. Anatomic anomalies must be considered a strong factor in the predisposing causes to torsion of the normal ovary and fallopian tube.

Maine Medical Journal, Portland

22: 191-214 (Oct.) 1931

Diagnostic Laboratory and Its Activities. A. G. Long, Augusta.—p. 196.
School Sickness in Lower Grades of School. Clair S. Bauman, Waterville.—p. 197.
Report of Poliomyelitis Epidemic of 1930 in Maine. M. Warren, Portland.—p. 201.
Id.: Clinical Aspects. T. A. Foster and L. H. Bishop, Portland.—p. 202.
Control of Poliomyelitis. S. D. Kramer, Boston.—p. 205.
Epidemiology of Poliomyelitis. C. F. Kendall, Augusta.—p. 209.

Med. Bull. of Vet. Adm., Washington, D. C.

7: 915-1004 (Oct.) 1931

Buffered Diluent as Preservative for Diphtheria Toxin for Schick Test. C. P. Brown, G. M. Melvin and I. G. Shirkey.—p. 915.
*Roentgen Diagnosis in Intravenous Pyelography. J. J. Peters.—p. 918.
Observations in Ten Cases of Thrombo-Angiitis Obliterans. A. C. Crank.—p. 922.
Epidural Anesthesia. H. E. Bundy.—p. 924.
Blood Transfusion. P. F. Brown.—p. 926.
Postoperative Medical Treatment of Gastro-Enterostomy. K. Reeves.—p. 928.
Involutional Melancholia. H. P. Morgan.—p. 933.
Psychosis with Pellagra. U. G. Iles.—p. 937.
*Tuberculous Meningitis. W. O. Hearn.—p. 940.
Prognosis in Pulmonary Tuberculosis. F. M. Gaines—p. 945.
Treatment Problems of Induced Malaria. V. B. Williams.—p. 949.
Changes of Type Occurring in Dementia Praecox. E. M. Levy.—p. 954.
Dementia Praecox: Its Relative Prevalence and Classification of Its Types. C. H. Burdick.—p. 958.
Practicability of Toothbrush Cabinets. D. S. Bartlett.—p. 961.

Roentgen Diagnosis in Intravenous Pyelography.—According to Peters, intravenous pyelography offers a simple, painless method of examining the kidney pelvis, ureters and bladder, roentgenographically producing urograms of diagnostic quality. While this method is reasonably innocuous, its indiscriminate use is not to be encouraged. With more experience in its use and skill in the interpretation of the observations, the diagnostic criteria will be as definite as those of cystoscop pyelography. Intravenous pyelography does not replace t older method. Its use in demonstrating function in surgic conditions of the kidney is of great value, both alone and wi ureteral catheterization. The uses of this method alone and combination with retrograde catheterization will increase wi more experience. Iopax serves a dual purpose. The time appearance of the opaque medium on the film, together wi physical and chemical tests of the urine, gives a fair estima of kidney function. This method broadens the field of pyelo raphy to the following, heretofore denied this important dia nostic aid: (*a*) infants and children, (*b*) debilitated adults, (urethral stricture cases, (*d*) cases with deformities, and (malignant cases and others unsuited for retrograde catheteriz tion. It is the method of choice in the absence of a compete urologist.

Tuberculous Meningitis.—Hearn emphasizes the fact th severe headache in a person with tuberculosis which is n relieved by ordinary methods, and especially if accompani by high temperature and elevation of the pulse, should regarded as suggestive of tuberculous meningitis. No improv ment can be hoped for, and death usually occurs within fo to six weeks from tuberculous meningitis, but spinal punctu done every forty-eight hours will help make the patient mo comfortable.

Northwest Medicine, Seattle

30: 437-482 (Oct.) 1931

*Chronic Pyuria in Children. M. F. Campbell, New York.—p. 437.
New Method of Employing Skeletal Traction. R. Anderson, Seattl—p. 444.
Craniocerebral Trauma Implicating Superior Longitudinal Sinus: Fo Case Reports. D. G. Dickerson, Seattle.—p. 449.
Diagnosis and Management of Craniocerebral Injuries. W. A. Bunte Cheyenne, Wyo.—p. 453.
Course of Gonorrhea as Recorded by Photomicrographs of Discharg W. R. Jones, Seattle.—p. 460.
Black Tongue: Case Reports. T. G. Mitchell, Seattle.—p. 464.
Free Choice of Physicians. A. H. Peacock, Seattle.—p. 467.

Chronic Pyuria in Children.—Campbell points out tha when chronic pyuria exists in a child, the diagnosis of chroni pyelitis is usually made and the child is inadequately treate for months or years. Because the renal lesion is primarily suppurative interstitial nephritis and the pelvic changes are o lesser importance, he believes the pathologically correct desig nation pyelonephritis should supplant the clinically convenien though inadequate term pyelitis. These patients should be give the benefit of an intensive course of medical therapy, but i after one month, they remain pyuric, a complete urologic exami nation should be carried out. From a large clinical experienc in this field it is found that infants and children may suffe with almost every one of the various types of diseases of th urinary tract which in the past one has been accustomed t consider as adult lesions. The treatment of these diseases i juveniles differs in no wise from that in adults. It cannot to urgently be stressed that these young patients are entitled t the same advantages of modern urologic methods that adul demand, especially since in juveniles the morbidity risk entail by examination is less than half that in adults. Only by thi method can the correct diagnosis be made and only by radica surgical treatment will many of these children be permitted t enjoy adult life.

Public Health Reports, Washington, D. C.

46: 2663-2707 (Nov. 6) 1931

*Pellagra-Preventive Value of Canned Spinach, Canned Turnip Greens, Mature Onions, and Canned Green Beans. G. A. Wheeler.—p. 2663.
Technic for Adjustment of *p*H of Tissue Cultures Planted in Carrel Flasks. W. R. Earle.—p. 2668.

Pellagra-Preventive. — Wheeler tested canned spinach canned turnip greens, mature onions and canned green beans for their relative pellagra-preventive potency. He found that canned spinach supplies the pellagra-preventive vitamin but cannot be regarded as especially rich in it. It is, however, considered an important contributory source of this factor. Canned turnip greens supply the pellagra-preventive vitamin and, at least in liberal quantity, adequately supplement an otherwise pellagra-producing diet. This substance meets many of the requirements of a practical and effective dietary supplement in of antigens, which are tested for sterility and innocuousness; that is, for nontoxicity with the lowest irritating power. The diphtheria toxins, freed from toxicity by the addition of solution of formaldehyde, so-called formol toxoids or anatoxin are the most recommendable for active immunization of children. For testing of these vaccines and others, it is necessary to determine a standard vaccine to be used for comparison, by testing each batch. Exact definite regulations are needed for the methods of testing. In order to obtain immunity of sufficient strength and duration, one must make three injections of the vaccine, increasing the doses. Intramuscular injections of the formol toxoids must be made. Investigation must be made to determine whether the methods of testing the immunizing power of the vaccines in large series of animals by testing them within a certain time after immunization with definite quantities of toxin can be replaced by other direct or indirect methods (flocculation, determination of the binding power, and so on). The immunization can be carried out during an epidemic. Animal experiments show that a negative phase after the injection of immunizing vaccine does not exist. Immediately after injection, one can find a resistance against infection with living bacilli or its toxins.

Journal of Tropical Medicine & Hygiene, London

34: 337-352 (Oct. 15) 1931

Year's Operative Work in Nairobi, Kenya Colony. N. P. Jewell.—p. 337.
Prognosis of Schistosomiasis Hematobium. R. Girges.—p. 342.
Some Aspects of Colon Group of Organisms, with Especial Reference to Water Supplies of Trinidad. J. L. Pawan.—p. 345.

China Medical Journal, Shanghai

45: 923-1036 (Oct.) 1931

Hydatidiform Mole and Chorio-Epithelioma. J. P. Maxwell.—p. 923.
*Intractable Incontinence of Urine: Case. D. M. Gibson.—p. 957.
Tuberculosis of Stomach: Two Cases. P. B. Price.—p. 963.
Experimental Researches on Etiology of Scarlet Fever: I. Is Hemolytic Streptococcus Always Detected in Scarlet Fever Patient or is Scarlet Fever Always Associated with Hemolytic Streptococcus? T. Toyoda, J. Moriwaki and Y. Futagi.—p. 969.
Id. II. Are All Strains of Scarlatinal Streptococci Capable of Producing Dick Toxin? T. Toyoda, J. Moriwaki and Y. Futagi.—p. 971.
Id.: III. Identification of Scarlet Fever Rash with Experimental Rash Caused by Toxin of Scarlatinal Streptococci. T. Toyoda, J. Moriwaki and Y. Futagi.—p. 972.
After Five Years. H G. Wyatt.—p. 976.

Intractable Incontinence of Urine.—Gibson reports a case of intractable incontinence ensuing on traumatic stricture of the urethra and complicated by grave renal sepsis. Mechanical relief of the incontinence was effected by transplantation of the ureters into the pelvic colon. The pathologic condition of pyonephrosis in the right kidney, however, precluded any hope of a successful cure. A marked feature was the progressive anorexia of the most incorrigible type. Emaciation thus became extreme. Doubt is cast on the value of nephrostomy as a surgical procedure, the resulting urinary fistula tending to prove intractable. The suggested cure of such a fistula by nephrectomy was out of the question in the author's case. The procedure of transplanting the ureters into the intestine is of great value in such cases as the one described, more especially if carried out before renal sepsis has supervened. It is a sound surgical procedure not fraught with any serious risk, provided due attention is paid to details of technic.

Presse Médicale, Paris

39: 1557-1572 (Oct. 24) 1931

*Volhard's Tests of Renal Function. Pasteur Vallery-Radot and A. Lafitte. —p. 1557.

Volhard's Tests of Renal Function. — Pasteur Vallery-Radot and Lafitte stress the value of specific gravity in the study of urinary function. Volhard's tests are (1) the dilution test and (2) the concentration test. The dilution test is performed as follows: The subject in a fasting condition, having urinated, drinks 1,500 cc. of water or very weak tea between 7:30 and 8:30 a. m. He remains in bed and urinates every half hour from 8 to 12. It is important to consider, on the one hand, the quantity of urine eliminated and the manner of elimination and, on the other hand, the specific gravity of the specimens of urine. A subject with normal kidney function will eliminate in the four hours a quantity of urine equal to and sometimes larger than the quantity of water ingested; during the first two hours, more than half of the total is voided; the different fractions of urine are not eq quantity; and finally the specific gravity should be low 1.000 to 1.003) but not higher than 1.003, and the total evacuated should be at least 1,300 cc. The concentratio is performed as follows: The subject two days before th gets an ordinary diet and drinks from 1,500 to 2,000 liquid. The day of the test he remains in bed and in during a period of twenty-four hours, bread, meat, eggs, p rice or potatoes, normally salted. Green vegetables and are excluded because of the water which they contain. drinks altogether from 400 to 500 cc. of water in small tionated quantities. He should urinate every two to four Normally the total volume of urine varies the day of th from 300 to 750 cc. The specific gravity of the urine is i tant—a portion should have a specific gravity of at least (a smaller figure denotes that the kidneys concentrate po The two tests demonstrate by dilution the function o glomeruli, and by concentration the function of the tu The tests of Volhard are compared with other tests in c usage, such as blood urea, Ambard's constant, and the p sulphonphthalein test. The authors conclude that there parallelism between Volhard's tests and other tests. In test the renal functions examined are distinctly different. number of described instances the other tests would not nate the difficulty that was clearly demonstrated by Voll tests. The tests cannot be interchanged.

Revue Sud-Am. de Méd. et de Chir., Paris

2: 881-976 (Sept.) 1931

*Suprarenals in Regulation of Arterial Tension. A. Biasotti.—p.
Amino-Acid Content of Blood in Pulmonary Tuberculosis. P. and E. A. Molinelli.—p. 900.
Possibility of Muscular Atrophy of Cerebral Origin. A. Austr and D. do Couto.—p. 905.
Kielland's Operation in Genital Prolapse. G. V. de Azevedo.—p
Curative Phlebosclerosis of Varicose Veins. J. Alfredo.—p.
Retention of Urine Caused by Fibromatous Gravid Uterus in version and Retroflexion. L. Razetti.—p. 933.

Suprarenals in Regulation of Arterial Tension.– sotti describes experiments which led him to conclude unilateral or bilateral abdominal sympathetic denervation ciated with section of the large or small splanchnic nerve not cause any change in the arterial tension. Extirpati one suprarenal generally does not modify the arterial te Extirpation of both suprarenals in an animal is followed progressive fall in the arterial tension and death in from to sixty hours. Dogs deprived of one suprarenal and the m lary substance of the other present a hypotension of fr to 4 cm. of mercury, the tension remounting progress until the initial level is attained (from twenty to thirty after the operation). When demedullized animals (tensi normal level) were bled to 1.5 per cent of their body w there was a more marked and more lasting hypotension when normal animals were bled. Ablation of the medu substance of the suprarenals caused an asthenia and a tension of the vasomotor system with diminution of the no functional capacity. At the beginning of the abdominal pathetic denervation and suprarenal demedullization the art tension fell for some time but later regained its initial

Minerva Medica, Turin

2: 485-520 (Oct. 13) 1931

*Diagnostic Value and Pathogenesis of a New Dorsal Pain Point. Campanacci.—p. 485.
Researches on Bacterial Flora of Cystitis Following Nephrecton Renal Tuberculosis. C. A. Velo.—p. 490.
Allergic Diseases. A. Cionini.—p. 493.

Diagnostic Value and Pathogenesis of a New Do Pain Point.—Campanacci recalls the subjective and the o tive pain symptoms that are encountered in appendicitis, re ing particularly, on the one hand, the abnormal localiza of subjective pain, and, on the other hand, the painful p (direct and indirect) that are objectively observable. He describes a new (dorsal) painful spot, to which he first c attention in 1927, occurring in cases of appendicitis. He how to locate it, how frequently it is manifested, its cli diagnostic value and its probable pathogenesis.

was traced to the eating of cheese; a portion of the suspected food was obtained for me by the kindness of Dr. Costa Mandry, and yellow staphylococci were found in it; filtrates of broth cultures of these organisms, prepared as before described, reproduced the symptoms of food poisoning in three human volunteers. To these may now be added a fourth,[7] caused by chicken gravy eaten by two persons in the Panama Canal Zone. In this instance also, staphylococcus filtrates were obtained which reproduced the typical symptoms in several human volunteers.

Still another instance of staphylococcus food poisoning has been studied in the laboratories of the University of Chicago:

> In November, 1930, a portion of a layer cake ("devil's food"), purchased at a store in Milwaukee, was served at the evening meal to four adults. One person did not eat any of the cake and was not ill; the other three partook of the cake and became violently ill with vomiting, diarrhea and abdominal pain. On the following day the mother of one of the patients ate some of the cake and became ill in a few hours with similar symptoms. We were informed that four other persons had become ill after eating cake from the same batch, but we were not able to secure any definite histories. Complaints were received about four cakes. Other cakes belonging to this batch of cakes (twenty-nine in all) were eaten without producing any noticeable ill effects. Portions of two cakes that had presumably caused illness were received at the laboratory and subjected to careful bacteriologic examination by Dr. G. M. Dack. Yellow hemolytic staphylococci were isolated and were present in large numbers (540,000 per gram) in the cake substance; they were also present in the filler, but in smaller numbers. Through the cooperation of Major John R. Hall, M. C., U. S. Army, I was able to test the toxicity of the sterile broth filtrates of this strain on human volunteers. Three adult male volunteers were each given 2 cc. of the unheated filtrate in pasteurized milk; two of the three became ill with typical symptoms. Two others, given 5 cc. in the same manner, were both affected. An experimental cake was inoculated by Dr. Dack with this strain of staphylococcus and portions of the cake and filler (containing living staphylococci as well as their products) were eaten by two volunteers; both became ill.

There are thus four instances in which we have found that food epidemiologically implicated in food poisoning contained staphylococci in large numbers; the staphylococci when isolated in pure cultures have yielded a broth filtrate (two days) which, when swallowed in small amounts (from 2 to 10 cc.) by human volunteers, has reproduced with fidelity the typical symptoms observed in the original patients.

There are also two reported instances in which the drinking of milk inoculated with pure cultures of staphylococci has caused illness. In one of these, the report by Barber in 1914, already cited, the staphylococci were of the albus variety; in the other, recently reported by Ramsey and Tracy,[8] an orange colored staphylococcus, believed to be of the aureus type, was apparently incriminated.

In addition to these six instances of quite well established staphylococcus food poisoning, our files of food poisoning outbreaks have been found to contain several reports in which staphylococci may be regarded with more or less definiteness as the probable inciting agents:

> (*a*) In June, 1929, twenty guests at a wedding party in Chicago were seized with violent gastro-intestinal illness soon after partaking of a wedding cake. It was reported to the city health authorities that other cakes distributed by the same baker about this time caused similar illnesses in four or five families. A large piece of the wedding cake, brought to our laboratory, was subjected to bacterial examination (by Miss Dorothy Reiter). No organisms of the paratyphoid group were found (Endo medium), but large numbers of yellow gram-positive staphylococci were present. Monkeys fed with portions of the cake, of the filler and of the staphylococcus culture did not show any signs of illness. No experiments were made with human volunteers.
>
> (*b*) In July, 1929, five firemen in one squad in Chicago became ill with nausea, vomiting, diarrhea and cramps about two to four hours after an evening meal in which canned beef and layer cake were the chief articles of diet. Beef from the same can had been eaten by others who were not ill, but the eating of cakes from the same bakery batch was found to have been followed by twelve cases of illness in one family (two others who did not eat the cake remaining well) and three in another. In the latter instance, cream puffs and not the layer cake had been eaten and, since the same custard filler was used in the two, it seemed probable that the filler contained the active toxic agent. Examination of other samples of cake from the implicated bakery did not bring to light any bacteria of the paratyphoid group (Endo medium), but microscopic examination made in our laboratory showed the presence of gram-positive staphylococci. At the time, the staphylococci were not suspected of connection with the outbreak.[9]
>
> (*c*) In July, 1928, approximately 150 persons in Boston and vicinity became ill with acute gastro-intestinal disturbance in a few hours (mostly from one to three and one-half hours) after a midday lunch in which chocolate cream pie seemed to be the common factor. A report of the outbreak was published later[10] and the epidemiologic evidence there presented seemed to warrant the conclusion that the cream filling of the pie was the cause of the outbreak. A volunteer experimenter in Boston became ill after eating a piece of the pie. Through the courtesy of Dr. George H. Bigelow, commissioner of public health of Massachusetts, specimens of the incriminated food were sent to me. Bacterial examination of the pie and filler did not result in the isolation of any member of the paratyphoid group but showed the presence in the filler of streptococci and staphylococci.[11] At the time, the streptococci were considered of greater interest than the staphylococci, and cultures were made in milk and broth and fed to monkeys in large amounts (150 cc.) without, however, causing any illness in these animals. The staphylococci were not experimented with further. In the light of our later knowledge, they may perhaps have been responsible for this outbreak.
>
> (*d*) In April, 1931, sixteen persons in five families in Jersey City became seriously ill with acute gastro-intestinal symptoms from three to four hours after partaking of layer cake. While individual cakes were served in each family, the cake all came from one bakery and had been baked at the same time and filled from the same batch of filling. A portion of the implicated cake was sent to us through the courtesy of Dr. D. J. Sullivan, deputy health officer. No members of the group of paratyphoid bacilli were found, but large numbers of staphylococci were present in the filler and cake (from 25 million to 30 million per gram).[12] In this instance the epidemiologic observations, the symptoms, the period of incubation and the large numbers of staphylococci found in the incriminated food strongly suggest that this outbreak was due to staphylococci.

Other records in our laboratory reports show that staphylococci were present in food suspected of causing food poisoning, but these instances do not seem worthy of specific mention, since either the epidemiologic evidence implicating the food was inadequate or the staphylococci in the sample examined were too few to establish any significant relation.

Occasionally in the literature one comes across descriptions of outbreaks of food poisoning in which staphylococci have been reported present in large numbers in the incriminated food, whereas no paratyphoid bacilli could be found. The following statement, for example, appears in the 1927-1928 report of C. W. Arthur, the bacteriologist of the Pasadena Health Department Laboratory:

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[7] Jordan, E. O., and Hall, J. R.: J. Prev. Med. **5**: 387 (Sept.) 1931.

[8] Ramsey, R. J., and Tracy, P. H.: Proc. Soc. Exper. Biol. & Med. **28**: 390 (Jan.) 1931.

[9] Dr. W. E. Cary supplied the data in this case.

[10] Nelson, N. A.: New England J. Med. **199**: 1145 (Dec. 6) 1928.

[11] The laboratory work was done by Mrs. I. J. Kirkman.

[12] Laboratory data by Dr. S. A. Koser.

> Two outbreaks of food poisoning occurred, one originating from French vanilla ice cream and one from custard-filled cream puffs. The symptoms in the outbreaks were practically the same: acute nausea and vomiting and diarrhea with spastic abdominal pains, beginning in from three to five hours. When the intestinal tract was cleared, recovery occurred quickly in most instances. In neither food was it possible to demonstrate organisms of the Salmonella group. However, a gram-positive coccus with the same characteristics was present in enormous numbers in and isolated from each food.

Since the publication of our first papers,[13] two outbreaks of food poisoning in New York State have been described,[14] both of which may have been due to staphylococci. In one of these, a cake purchased at a church fair caused violent illness in four members of a family of six, the two persons unaffected having eaten the other articles of food served but not the cake. The incubation period was less than an hour, and the symptoms were similar to those observed with staphylococcus filtrate. Staphylococci were found to be the predominating organisms in the cake and "no organisms of the enteric disease group were isolated." In the other instance an outbreak of gastro-enteritis, estimated at not less than 125 cases, occurred among persons eating cream puffs or chocolate eclairs manufactured and distributed by a wholesale bakery. The onset of symptoms occurred within a few hours after eating. Staphylococci were isolated from the filling, but "none of the organisms generally associated with enteric diseases was isolated from the filling of the pastry or from the feces of patients."

COMMENT

The staphylococcus type of food poisoning differs in several respects from the more familiar type due to members of the Salmonella or paratyphoid group. It could, of course, never be confused with botulism.

There is a distinct difference in the incubation period. Staphylococcus food poisoning usually develops within a few hours after the toxic substance is swallowed. In the outbreaks thus far traced to this source, nearly all the persons affected have manifested symptoms within four hours, although rarely symptoms have appeared later. Human volunteers, of whom we now have a record of approximately 100, almost invariably show the first objective symptoms in from two to four hours after swallowing toxic staphylococcus filtrates. Vomiting appears with considerable regularity about three hours after the feeding.

Salmonella food poisoning, on the other hand, has as a rule a considerably longer incubation period. Although marked individual differences are observed, the onset of symptoms is on the average at least from six to twelve hours after eating the food and is probably somewhat longer. In many authentic instances the Salmonella incubation period is more than twenty hours.[15]

No deaths have yet been observed from food poisoning of the staphylococcus type. In the four outbreaks definitely traced, twenty persons are known to have been acutely ill, without any fatalities. The same is true of the instances reported by Barber and by Ramsey and Tracy, living staphylococci as well as their products being swallowed in these cases. In the four additional outbreaks previously summarized (*a*, *b*, *c* and *d*), in which there is strong evidence that staphylococci were the inciting agents, 206 persons were affected, without a death. Approximately 100 human volunteers who have become ill after swallowing sterile toxic filtrates have all recovered completely. The symptoms are, however, in some cases alarmingly violent and accompanied by great prostration. I do not believe that it can yet be said that this form of food poisoning is without danger to life. The mortality in the Salmonella form of food poisoning is usually estimated at about 1 to 2 per cent.

Perhaps the most important difference yet found between the Staphylococcus and the Salmonella types of food poisoning is that the staphylococci isolated in these cases yield a sterile broth filtrate which reproduces the characteristic symptoms when swallowed in as small amounts as 2 cc., whereas Salmonella filtrates have been fed to human volunteers in as large amounts as 145 cc. without producing any symptoms.[16]

The staphylococci concerned in food poisoning, as far as they have been studied, do not seem to differ in their main cultural characteristics from the common and widely distributed members of this group. Both albus and aureus varieties are found among the strains yielding toxic filtrates. There is evidence that strains that at one time produce the toxic substance do not produce it at another time, and vice versa. The majority of the toxic strains that we have isolated have lost (temporarily?) after some months of cultivation the power of yielding toxic filtrates. In two instances,[6] strains that produced a toxic filtrate early in 1930 soon after isolation (strains 1 and 5 in this paper) still produced, a year later (February-March, 1931), filtrates that caused illness in human volunteers. The potency of the filtrates from these year-old strains was not as great, however, as that of two more recently isolated strains, one from the Milwaukee cake (March, 1930) and one from chicken gravy (March, 1931).

The source of the staphylococcus contamination of food has not yet been determined. In connection with the Milwaukee cake outbreak, we were able to obtain samples of the materials used in preparing the cake: frozen eggs, flour, sugar, cocoa, soda, flavoring compound and "crisco." While abundant bacterial growth occurred from several of these ingredients, staphylococci were not found in large numbers in any. Samples of batter mixed by hand by six different workers in the bakery were also examined without in any instance disclosing staphylococci in noteworthy numbers. There is evidence that staphylococci with food poisoning qualities are sometimes present in cow's milk,[5] but since it has been shown[6] that staphylococci from the apparently normal human throat and other sources are also able to produce a substance that is toxic when swallowed, the derivation of the staphylococci causing any particular outbreak may not be easy to determine. The thorough study of a larger number of outbreaks than yet available will be necessary before the question of origin can be satisfactorily settled.

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[13] Dack (footnote 3). Jordan (footnote 3).

[14] Health News, New York State Dept. of Health, Oct. 13 and Dec. 18, 1930.

[15] Sacquépée, E.: Les empoisonnements alimentaires, Paris, J.-B. Baillière & fils, 1909. Savage, W. G.: Food Poisoning and Food Infection, London, Cambridge University Press, 1920. Savage, W. G., and White, Bruce: Medical Research Council, Special Report Series number 92, London, His Majesty's Stationery Office, 1925.

[16] Dack, G. M.; Cary, W. E., and Harmon, P. H.: J. Prev. Med. 2: 479 (Nov.) 1928.

The properties of the toxic substance are still under investigation. Progress in this field has been necessarily slow because of the difficulties entailed by having to use human volunteers. Some degree of tolerance appears to develop in man fed with toxic staphylococcus filtrates, but there is no evidence of the generation of any true immune body.[17] Repeated attacks of gastro-intestinal disturbance may be produced in the same individual by successive feedings. The toxic substance is not completely destroyed by boiling for thirty minutes but is perhaps somewhat weakened.[18] Sterile toxic filtrates stored at low temperatures retain their original strength for at least three or four weeks; in one instance, 5 cc. of a 67-day old filtrate produced violent symptoms in a volunteer.[18] The toxic quality of a filtrate is not destroyed by contact with a rather strong chlorine solution (0.1 cc. of 0.0915 per cent chlorine (Cl_2) solution added to 5 cc. of a toxic filtrate three minutes before swallowing).

Clinical Notes, Suggestions, and New Instruments

SUCCESSFUL REMOVAL IN AN ELDERLY PATIENT OF AN ENDOTHELIOMA OF THE SPINAL CORD

Mark Gerstle, Jr., M.D., and Edmund J. Morrissey, M.D.
San Francisco

The features of the case that we are about to describe which in our opinion render it worth while to report are, first of all, the cervical location of the tumor; second, the advanced age of the patient; third, the long duration of the symptoms which were repeatedly misinterpreted, and, finally, the excellent result of the surgical extirpation.

Miss J. E., aged 67, when first seen by one of us (M. G., Jr.), in July, 1929, was confined to bed at her home. Her chief complaints were spastic paralysis of both legs, incontinence of urination and defecation, and spastic weakness and beginning contractures of both hands.

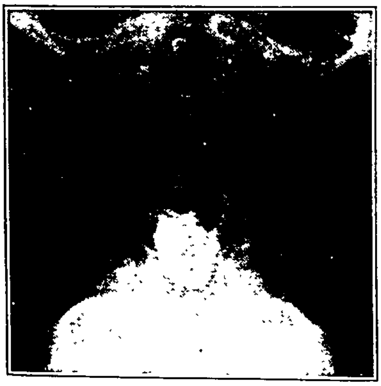

Fig. 1.—Anteroposterior view of iodized oil arrested opposite the fifth cervical vertebra; distinct filling defect.

The family history is inconsequential. The patient's health before the onset of the present illness had always been excellent. She had lived in California most of her life, where she used to be a school teacher.

June 9, 1923, the patient presented herself at a well known clinic complaining of weakness and occasional loss of control of her right ankle and leg. Following several examinations at the clinic she was advised to enter the hospital for observation, which she did, June 23, 1923. She remained there four days and remembers that among other procedures a lumbar puncture was performed. She then returned to the clinic, where some medicine was prescribed for her. A few days later she had "eruptions in the form of water blisters" across the back. Shortly afterward she discontinued her visits to the clinic and employed a chiropractor, who treated her with ultraviolet rays and massage without benefit. In 1924 she paid monthly visits to a physician, who stated that her symptoms were due to "high blood pressure." In 1925, the weakness of her right leg had grown much worse and she then began to notice a similar loss of power in the left lower extremity. She also began to be troubled with paresthesias in both limbs which she describes as "hot, creeping sensations" and "ice-like feelings" chiefly in the soles of both feet. Then followed a long period of attempted treatment by a second physician and also by a member of the orthopedic staff of the San Francisco clinic, which she had previously attended. On the advice of the orthopedist, September 13, she again entered the hospital, where she remained six days. At this time roentgenograms of her spine were taken, following which she was discharged unimproved.

In 1926 she entered the hospital, where her legs, teeth and spine were once more roentgenographed and where she was given massage and electrotherapy. She returned home greatly discouraged, but in the same year she returned for a tonsillectomy, which she had been strongly recommended to have performed. The second night after her return home she noticed for the first time she had completely lost control of her left leg. Thereafter she was confined to her bed except for brief periods spent in a wheel chair. A diagnosis of arthritis was made with a poor prognosis.

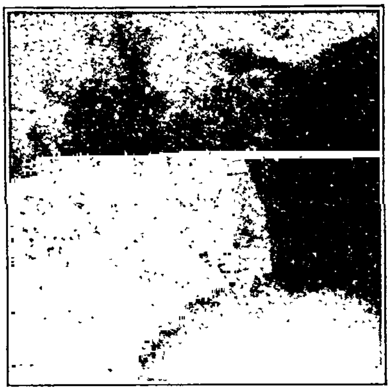

Fig. 2.—Lateral view of the phenomenon illustrated in figure 1.

In 1927 she noticed that the little finger of the right hand became "separated from the other fingers." She soon became unable to grasp anything with this hand, and a few weeks later the left hand suddenly became "useless." Both hands became "ice cold" and remained so. She began to have involuntary micturition and defecation. During the latter part of 1927 and the early months of 1928 the symptoms in her hands gradually increased and she became absolutely confined to her bed and was unable to sit up unless heavily supported. She also began to notice a feeling of "painful pressure" between her shoulder blades.

In July, 1929, the patient was visited by one of us (M. G., Jr.). At this time she presented the picture of a spastic paraplegia. An atrophy of the small muscles of both hands was noticed. Her general nutrition was excellent, however, although the patient was completely incapacitated and bedridden. On this occasion a tentative diagnosis of spinal cord tumor was made and the patient was hospitalized for further investigation. August 12, the patient was transported to the French Hospital in San Francisco by an ambulance, where the first systematic examination was made. The essential observations were:

1. Atrophy and spastic weakness of the thenar and hypothenar muscles, more noticeable in the right hand than in the left.

2. Complete spastic paralysis below the waist. The tonus of both legs was greatly increased. The patient was unable to move her lower limbs or feet in any way. The abdominal reflexes were absent. The knee and ankle jerks were very hyperactive. There was a well sustained bilateral ankle clonus and a positive Babinski response in both feet. During the examination the patient passed feces and urine involuntarily. There was a moderate amount of generalized atrophy of the muscles of both thighs and legs, but no more than would inevitably occur from almost three years of disuse. The sensory examination disclosed a hypesthesia and hypalgesia extending to a level approximating the first dorsal segment. This was somewhat patchy and difficult to demarcate. Deep joint and vibratory sensibilities were completely absent in the lower extremities.

Despite the patient's excellent nutrition the possibility of a metastatic cord tumor was considered, but flat plates of the femurs, pelvis and rib-cage revealed no evidence of a malignant growth. However, these roentgenograms showed a rather advanced hypertrophic arthritis of the knees and lumbodorsal spine.

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[17] Dack, G. M.; Jordan, E. O., and Woolpert, Oram: J. Prev. Med. 5: 151 (March) 1931.

[18] Jordan, E. O., and Dack, G. M.: J. Prev. Med. 5: 383 (Sept.) 1931.

A spinal puncture was then performed. The fluid was clear and colorless, the pressure 6 mm. of mercury (normal). The Queckenstedt test was definitely positive, there being absolutely no rise in pressure on bilateral compression of the jugular veins. The cell count was 6 lymphocytes, the Pandy test was positive, and the total protein was 160 mg. per hundred cubic centimeters. These observations strongly pointed to a subarachnoid block, probably the result of tumor. Accordingly, the clinical observations were confirmed and the level was estimated to be about the first dorsal segment.

Two days later a cisternal puncture was done, 1 cc. of fluid removed and 1 cc. of warm iodized poppy-seed oil slowly injected. The patient was held in the sitting position and fluoroscopy was performed by Dr. L. B. Crow, the iodized oil descending to a level opposite the upper border of the fifth cervical vertebra, where it stopped, showing a distinct filling defect. Plates taken one hour and twenty-four hours later revealed the same evidences of block.

The diagnosis of a cord tumor was accordingly concurred in by the neurologist, neurosurgeon and roentgenologist. The lack of painful symptoms was in favor of an intramedullary growth and this point leading, of course, to a bad prognosis was carefully explained to the patient. She, however, decided to be operated on, despite the fact that no great hope of alleviation or cure could be offered her.

August 19, one of us (E. M.) under local infiltration with procaine hydrochloride performed a laminectomy on the patient. After removal of the laminae of the fifth, sixth and seventh cervical vertebrae and opening of the dura, an endothelioma which lay between the meninges was removed. This tumor weighed 2.5 Gm. and had compressed the right side of the cord, thereby reducing its caliber to about one-third its normal size. The dissection of the tumor was complicated toward the end by the necessary pulling on the posterior roots, which caused the patient considerable pain. It was, however, completely removed and the patient returned to her room in excellent condition.

Within half an hour after the operation had been completed, the patient noticed that she was able to flex her left ankle slightly and move the toes of her left foot. Within twenty-four hours she began to regain the use of her left hand. Within a week, flexion, extension, adduction and abduction of the left leg and thigh were performed and about this time she began to recover the ability to bend and extend the toes of her right foot. The patient remained in the hospital for three weeks, owing to a small sinus in the wound. On her discharge she was able to control her hands perfectly, bend and extend her left leg and flex her right leg.

From that time to the present her improvement has gradually increased. In November, 1929, a letter was received from the patient in which she stated that she was able to use her hands as well as ever in her life, she was able to sit up unsupported, and she could swing her legs from one side of the bed to the other so that she could get in and out of a wheel chair unsupported. The control of her sphincters had almost completely returned and she expected to attempt the use of crutches in the near future. The atrophic muscles of her hands had noticeably filled out and their power was excellent.

In March, 1931, the patient was last seen and examined. Her improvement had been very marked. She was able to walk around her house and garden without the use of crutches or any other support. Her general health was excellent. She had regained control of her sphincters, and her only complaints were occasional burning, prickling sensations in the right foot and in the region of the right knee.

The physical examination at this time showed that the right ankle and knee jerks were still very hyperactive and that the Babinski reflex on the same side was positive. The ankle clonus, however, had disappeared. The power in both lower extremities was excellent and there were no noticeable sensory changes.

COMMENT

This case illustrates the advantages of cooperation between clinician, surgeon and roentgenologist. All three individuals contributed in an essential way to the favorable outcome. It also illustrates the lack of careful examinations and useless therapy to which such patients are often subjected. It appears to us that the favorable result is remarkable owing to the rather advanced age of the patient, the cervical location of the tumor and the long duration of the symptoms.

490 Post Street—909 Hyde Street.

HYPERINSULINISM: REPORT OF A CASE

Henry J. John, M.D., Cleveland

Jan. 24, 1929, a physician, aged 61, came to the Cleveland Clinic with a history of diabetes. His weight had decreased from 230 pounds to 137 pounds (104 to 62 Kg.), a loss of 41 per cent. He was 5 feet 8½ inches (174 cm.) in height. He gave the following history:

After an attack of influenza a month previous to entering the clinic, he lost weight rapidly and became very weak. He was exceedingly nervous and a tremor was present. Nocturia and glycosuria developed. He took some medicine by mouth but kept on losing weight and strength, and jaundice developed. The previous history contained nothing of importance.

On physical examination the patient was found to be extremely weak and emaciated. The teeth and tonsils were infected. The chest was clear, but a pulmonic systolic murmur was present. The liver was enlarged. The blood pressure was 136 systolic and 70 diastolic, the pulse 108 and the temperature 99.2 F. The basal metabolic rate was plus 83 per cent. Roentgen examination of the gallbladder revealed shadows suggestive of stones. Roentgen examination of the gastro-intestinal tract gave negative results.

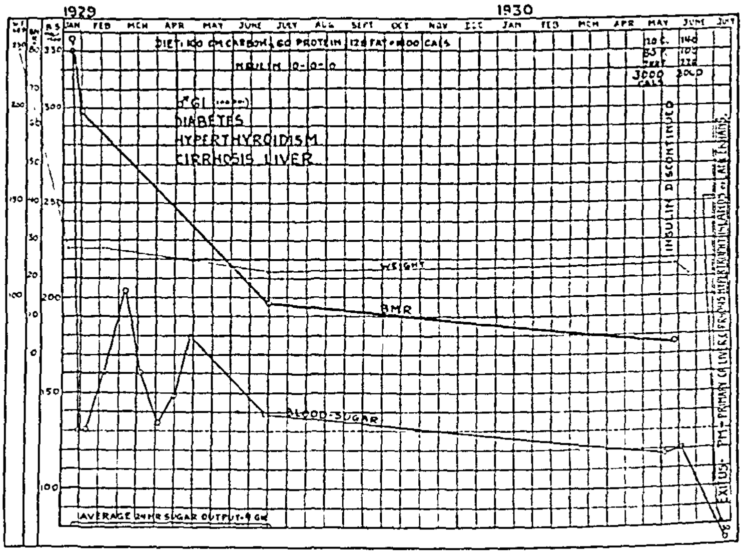

Fig. 1.—Clinical conditions in a patient presenting hyperthyroidism and diabetes, with hyperinsulinism.

The diagnosis included hyperthyroidism, diabetes mellitus, septic teeth and tonsils, and hypertrophic cirrhosis of the liver.

The patient entered the hospital and was put on routine diabetic treatment and compound solution of iodine (Lugol's solution) 15 minims (0.9 cc.) three times a day. The infected teeth were extracted. Marked improvement was noted; the blood sugar dropped to a normal level, where it remained. The patient was putting out about 4 Gm. of sugar in twenty-four hours during his stay in the hospital. The nervousness and tremor decreased and in less than five months the basal metabolic rate dropped to plus 13 per cent. The patient's weight, however, did not increase, and he suffered from diarrhea. He went to Florida for a few months and on his return in May, 1930, he was free from sugar. The basal metabolic rate at that time was plus 3 per cent (fig. 1).

Insulin was discontinued, and the patient's diet was increased from 1,800 to 3,000 calories. Examination at this time showed a normal blood sugar and sugar free urine. The carbohydrate content of the diet was now increased to 140 Gm. and the protein content to 100 Gm., the total number of calories remaining the same. The patient did not gain in weight and the diarrhea persisted. He reentered the hospital, July 19, 1930, in coma. The temperature was 100.4 F., the pulse rate 156, and the respiratory rate 24. The blood sugar content was 30 mg. per hundred cubic centimeters. Dextrose was administered intravenously, but the patient died in a few hours.

The observations from the postmortem examination were as follows: hyperplastic lymphoid tissue (lymph nodes, spleen); chronic fibrotic myocarditis; atrophic cirrhosis of liver (hyperplastic bile ducts); thrombosis of splenic and portal veins; primary carcinoma of the liver and secondary carcinoma of the gallbladder; infarcts of lungs; chronic interstitial pancreatitis, with atrophy and hypertrophy of the islands; acute bronchitis and bronchopneumonia; gastro-intestinal hemorrhages; Bacillus coli abscesses in the spleen; arteriosclerosis, and jaundice.

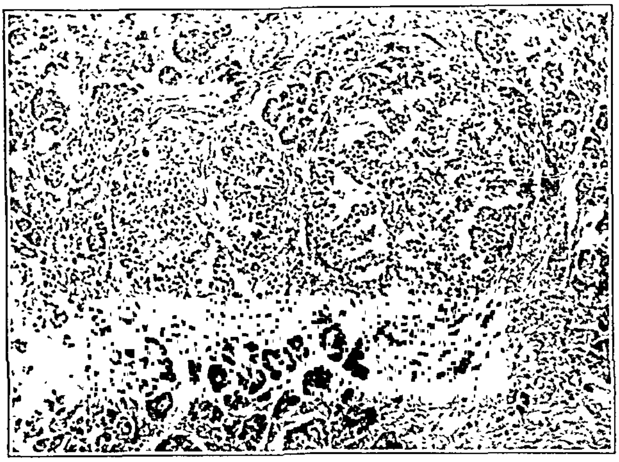

Fig. 2.—Hypertrophic condition of the islands of Langerhans.

Figure 1 shows several interesting points in connection with this case. The severe hyperthyroidism and diabetes responded to treatment with compound solution of iodine and insulin so that, after sixteen months, insulin was discontinued and a normal blood sugar level was maintained even on a markedly increased diet. The emaciation and diarrhea, however, persisted in spite of treatment. The low blood sugar level at the time the patient was readmitted to the hospital in coma would have been difficult to explain but for the postmortem examination.

Figure 2 shows the markedly hypertrophied islands of Langerhans. Such islands produce more insulin than normal islands in spite of the tremendous reserve in normal islands. The question arises, Is it the hypertrophy of the islands per se which causes hyperinsulinism or is it the regulating mechanism of the insulogenic output which brings it about, either in the presence of hypertrophy of the islands or when the islands are normal? Hyperinsulinism is seen in both instances.

2050 East Ninety-Third Street.

Purpura Hemorrhagica Associated with Tuberculosis.—Purpura hemorrhagica is a condition associated with marked diminution in the blood platelets, spontaneous bleeding from the mucous membranes and purpuric lesions of the skin. It may occur in a primary or idiopathic form (called essential thrombopenia), or as a secondary manifestation in pernicious anemia, lymphatic leukemia, diphtheria and tuberculosis.—Litvak, A. M., and Holzsager, T. G.: Purpura Hemorrhagica, *Am. J. Dis. Child.* **42**:1160 (Nov.) 1931.

Committee on Foods

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

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Sponsors.—American Institute of Baking, Chicago.

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White bread is a wholesome, nutritious food. As such, it has its rightful place in the normal diet of the normal individual. Its avoidance for fear of any untoward nutritional consequences or the fear that it is the cause of any disease condition when properly used in the normal diet is without scientific foundation.

PABST PASTEURIZED PROCESS CHEESE (PIMENTO)

Manufacturer.—Pabst Corporation, Milwaukee.

Description.—A pasteurized process American cheese containing disodium and trisodium phosphates as emulsifiers, with pimentos and salt.

Manufacture.—The manufacture is essentially the same as that described for Pabst-ett (A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals) (The Journal, Oct. 24, 1931, p. 1227) excepting that canned pimentos are added but no whole milk or concentrated milk whey.

Chemical Composition (submitted by manufacturer).—

	(sample as is) per cent	(moisture free basis) per cent
Moisture	39.9	...
Ash	5.0	8.3
Salt in ash	1.6	2.7
Fat (ether extract)	30.4	50.6
Protein (N × 6.38)	22.6	37.6
Lactose (by difference)	2.1	3.5
Phosphorus (P)	0.35	0.58

Calories.—3.72 per gram; 105.6 per ounce.

Vitamins.—The vitamin content is essentially that of Pabst-ett (A Pleasing Combination of "Process" Cheese, Milk Proteins, Milk Sugar, Milk Minerals).

Claims of Manufacturer.—See this section for "Pabst-ett."

PIXIE STRAINED TOMATOES

(Mildly seasoned with salt)

Manufacturer.—Fruit Belt Preserving Company, East Williamson, N. Y.

Description.—Canned, sieved tomatoes containing in large measure the mineral and vitamin content of the raw tomatoes used; contains a small amount of added salt.

Manufacture.—Mature tomatoes are sorted and washed, and green sections, cores and defective spots are trimmed out by hand and again washed. The prepared tomatoes are broken down by steam in a closed kettle and then sieved, canned and processed by essentially the same method as those described for Strained Carrots (The Journal, Nov. 14, 1931, p. 1467). The final processing involves twenty minutes' heating in boiling water. A small amount of salt is added to each can.

Chemical Composition (submitted by manufacturer).—

Specific gravity 20 C./20 C.	1.06
	per cent
Moisture	88.8
Total solids	11.2
Ash	1.2
Fat (ether extract)	0.1
Protein (N × 6.25)	1.9
Carbohydrates other than crude fiber (by difference)	7.4

Calories.—0.38 per gram; 10.8 per ounce.

Vitamins; Micro-Organisms; Claims of Manufacturer.—See these sections for Pixie Strained Carrots.

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SATURDAY, DECEMBER 5, 1931

FEE SPLITTING—AN OLD ETHICAL PROBLEM

A basic principle in medical practice demands that the physician call as a consultant the best available man for the purpose. That principle is determined, of course, by a fundamental consideration: the one impelling motive in every action taken by a physician must be the good of his patient. For these primary reasons, ethical physicians oppose fee splitting in any way, shape, manner or form. Every one now realizes that the general practitioner who makes the diagnosis and who is primarily responsible for the care of the patient deserves a much greater percentage of what the patient is able to pay than he actually gets when the patient is referred to a surgical, otolaryngologic, ophthalmologic or other consultant. Nevertheless, if this is accomplished by the secret division of fees it is an abomination full of evils. If patients could come to understand that the general practitioner's fee, when a specialistic procedure is necessary, should be greater than on ordinary occasions, the difficulty would be largely overcome.

Still more hazardous to the patient and to the honesty of the medical profession are the inroads on the traditional ideals of medicine brought about by the entrance into the medical field of innumerable technical procedures. The changing nature of medical practice means that medicine is now conducted not only by the 150,000 physicians who practice in our country but also by several hundred thousand nurses, laboratory technicians, nonmedical roentgenologists, anesthetists, dietitians, physical therapy aides and similar groups. These workers do not have the background conferred by scientific medicine. To them in many instances "ethics" is merely a word. Moreover, technical services are being purveyed by corporations sometimes controlled by business men who are not physicians, sometimes by physicians who are primarily business men. In various parts of the country, physicians are being urged to arrange for laboratory service, for x-ray service, for physical therapy help, for colonic flushing, and for dietetic service with corporations, institutions, laboratories or technicians who are willing, provided the physician sends his patients to them, to give to the physician a portion of the income derived from such clientele. If it is essentially unethical for a physician to choose, as a surgeon for his patient, the operator who will give him the largest percentage of the fee rather than the one who would seem to be the best available surgeon for the purpose, it is equally wrong for him to select any other service to be given to the patient on the same basis. With this point of view there cannot be any argument. The essential dishonesty cannot be evaded by any form of charter, contract, mutual agreement or similar arrangement.

The nature of the times is such that men driven by economic necessity seek to find plausible apology for evasions of ideals and principles that in more liberal times they would support without the slightest hesitation. Manufacturers whose competitors give them little concern in times of prosperity burn with indignation at the slightest hint of unfair competition during times of economic depression. The traditions and ideals of scientific medicine have weathered many an economic storm during the two thousand years that they have guided the noblest of professions. It is reasonable to believe that the tottering of a few during this time of stress will not become the example that will lead the rest of the profession to follow the black sheep blindly over the precipice.

MORE ABOUT THE MENACE OF METHYL ALCOHOL

The comparative toxicity of methyl alcohol, or methanol as it is now frequently designated, has been known for many years. Soon after the middle of the nineteenth century it was clearly established that "methylated spirits," or wood alcohol, represented a serious hazard in certain industrial processes. For some time the exceptionally poisonous properties were attributed to impurities in the commonly used methanol, wood alcohol. Improvements in the processes of its production led to removal of offensive odors and other purification resulting in increased sale for a variety of purposes. The dangers were not lessened. Then several factors came to the fore in bringing about greater danger from methyl alcohol. The prohibition of the sale of alcoholic beverages led to the substitution of methyl alcohol for the forbidden grain spirit, ethyl alcohol, frequently on the unwitting assumption that these chemical compounds so similar in many properties were practically interchangeable from a physiologic standpoint. Impure methyl alcohol began to be used as a denaturant of ethyl alcohol, to permit the latter to be employed for technical purposes and yet make it unfit for human consumption. This led to numerous fatalities through the drinking of "industrial alcohol" containing methyl alcohol or products distilled from it. Furthermore, the growing number of automobiles has led to widespread use of methyl alcohol as an antifreezing agent in radiators of motor cars. Fumes of the heated alcohol rarely might be inhaled to an extent that brings disaster. Finally, the employment of methyl alcohol as a solvent has introduced additional hazards when the products are applied in enclosed spaces.

In their monograph on noxious gases, Henderson and Haggard[1] have pointed out that the solubility of the alcohols causes them to be eliminated only slowly through the lungs. The slow elimination is, however, in part counterbalanced by the oxidation of some of the alcohols within the body. This destruction of alcohol in the body is particularly marked for ethyl alcohol but does not occur to more than a small extent with methyl alcohol. Ethyl alcohol is more toxic than methyl for equal concentrations maintained in the body, but the rapid oxidation of ethyl alcohol to water and carbon dioxide prevents its acting as a serious toxic agent when it is absorbed through the lungs from any ordinary concentration of its vapor in air. On the other hand the vapor of pure methyl alcohol is an anesthetic, a nonreactive gas of high solubility, which therefore accumulates in the body and exerts a direct poisonous action on the nervous system, particularly the retina. According to Henderson and Haggard, more than a week is required to eliminate the methyl alcohol acquired by a single large absorption. If the exposure is repeated before the elimination is completed, a cumulative effect results; the amount absorbed at each exposure is added to that which remains uneliminated. A toxic concentration is thus gradually built up in the blood as a result of exposure to concentrations that do not cause an appreciable effect on a single exposure.

The salient facts just reviewed have been presented repeatedly in THE JOURNAL. In addition to the deliberate or the unsuspected imbibition of the harmful methyl alcohol there are the dangers not only of inhalation of its vapors but also of its possible absorption through the skin. Various industries and "filling stations" are particularly involved. It is reported that more than two hundred deaths occurred during the winter of 1930-1931 as a result of unintelligence and free access to methyl alcohol in filling stations and other little controlled sources. These circumstances raise questions of public safety beyond the peculiar present-day incentives to the menacing use of methyl alcohol for beverage purposes.

A recent investigator[2] has pointed out that the participants in the discussion of the toxicity of methyl alcohol are divided into two major groups. One group maintains that the reasonable and intelligent use of methyl alcohol in industry and commerce is safe and practical and may be expected to be attended by no harm to those persons handling it. The other group maintains that reason and intelligence may not be expected from those who are exposed to or have free access to methyl alcohol. In studies on animals at the Industrial Health Conservancy Laboratories in Cincinnati, McCord[2] has found that methyl alcohol applied to the skin has invariably led to damage consistently like that arising from the oral intake of this substance. This evidence of absorbability of methyl alcohol has been noted in optic atrophy observed clinically by ophthalmologists, and after death as observed in lipoidal degeneration. The regular recovery of methyl alcohol on the distillation of all organs derived from skin-treated animals, and the absence of similar conditions in control animals, constitute inescapable proof of absorbability.

How great may the actual danger become? According to McCord, if the results obtained from monkeys may be applied to man, approximately 1 ounce (30 cc.) of methyl alcohol repeatedly in contact with the human body, under conditions favorable to retention and evaporation, constitutes a threat to well being. The threshold of danger by inhalation is well below 1,000 parts per million of methyl alcohol vapor. If this degree of toxicity obtained from monkeys applies to man, the vapors from one ounce of methyl alcohol entering the human body constitute a threat to life even when the exposure is distributed over two or three days. Perhaps the time has come to reappraise the situation that confronts us in the United States and decide whether it calls for further protective measures for the safety of the public. This is particularly true when elaborate studies have led the investigator to regard it as reasonable to assume that "practical hazards for human beings may be produced under conditions of apparently trivial exposures."

EXPERIMENTAL POLIOMYELITIS

Years ago, Lee[1] pointed out that bacteriologists have shown great ingenuity in devising methods by which micro-organisms may be cultivated and studied. He recalled how their laboratories have become veritable bacteriologic gardens, where living germs are kept under the best possible conditions. The species are separated from one another; the proper foods are given to each; the most advantageous surroundings as to light, air, temperature and moisture are provided; the bacteria are nursed when ill, and every effort is made that they may lead healthy lives. Opportunities are thus given for the exact study of their activities. These are, of course, important features in the warfare on disease, and they represent an almost indispensable part of the attack in the field of infectious disorders. In response to microbiotic invasion, the body develops unique methods of defense. In part they are cellular, in part chemical. Antibodies of surprising potency may

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1. Henderson, Yandell; and Haggard, H. W.: Noxious Gases and the Principles of Respiration Influencing Their Action, New York, Chemical Catalog Company, 1927.

2. McCord, C. P.: Toxicity of Methyl Alcohol (Methanol) Following Skin Absorption and Inhalation, Indust. & Engin. Chem. 23:931 (Aug.) 1931.

1. Lee, F. S.: Scientific Features of Modern Medicine, New York, Columbia University Press, 1911.

result. Specific serums have thus become of life-saving value both as curative and as preventive agents. Problems of immunity are being opened for solution.

In the course of the study of contagion and infectious diseases, investigators have come to appreciate the importance of discovering susceptible experimental animals. It is not enough to isolate the harmful microorganisms or to separate the more elusive filtrable viruses. The response of the body to their presence—the results of their invasion into the fluids and tissues—forms a significant part of the picture of the resultant disease. All the features should be reproducible in their entirety in order to facilitate the study of etiology and treatment. Different species of animals show quite unlike susceptibilities to some of the human ailments. The initiation of progress in combating them is in no small measure made possible, therefore, by finding susceptible animals for the study of the manifestations on the one hand, and for the production of immune serums on the other. Medical history affords illustrations alike of the help afforded by the discovery of suitable animals, such as the horse, in the development of antidiphtheritic substances, and of the retardation of scientific advancement in other instances owing to the inability to imitate specific disorders with certainty outside man.

This has to some extent been true of the dreaded poliomyelitis. The monkey was early found to show some susceptibility. Heretofore it has appeared that only a portion of the human strains of the virus can be implanted in the experimental animals. Flexner[2] has pointed out that, not infrequently after the first successful inoculation of monkeys with human spinal cord or medulla obtained in fatal cases of poliomyelitis, the succeeding inoculation of the spinal cord of the affected monkey has failed to induce disease. The reason for this disparity is not known. Newly announced investigations[2] at the Rockefeller Institute for Medical Research, New York, indicate a way to increase the proportion of successful inoculations of affected human and monkey spinal cords and brain stems. It consists of repetition of the injections of the virus-bearing tissues. According to Flexner, the abortive can be converted into the progressive paralytic disease by means of reinoculation. Whether the acceleration is due to virus alone or to alien tissue elements remains uncertain. It may be merely a summation of virus effects. The immediate feature of moment is the improvement in research technic, for the numerous experimental failures can now presumably be turned into a liberal quota of successes. The 1931 epidemic of poliomyelitis has sufficed to impress the public as well as the physician with the need of persistent investigation. For such studies in poliomyelitis an improved tool of research now seems to have been devised.

THE PROBLEM OF VITAMIN ASSAY

Any one who has had occasion to deal in any thorough way with the modern problems presented by the discovery of the vitamins must realize the difficulties that attend the quantitative aspects of the subject. It has become obviously important to secure estimates of the varying content of vitamins in the numerous foods that carry these indispensable nutritional substances. The need of suitable methods of assay has been further accentuated along with the growing efforts to separate the different vitamins from their natural carriers and to prepare concentrates that shall be far richer in the food factors than are the natural products. The questions of comparative potency arise in relation to the influence of the varied processing and culinary procedures that foods may be subjected to in the home as well as in the factory. Wherever food conservation is involved, the possibility of deterioration is presented; and this applies to the essential vitamins as well as to the energy-yielding nutrients. A good illustration is afforded by cod liver oil. The value of this widely used medicinal food lies above all in its richness in vitamins A and D. On this account the Council on Pharmacy and Chemistry of the American Medical Association requires that the specific vitamin potency of brands of cod liver oil and cod liver oil concentrates accepted for inclusion in New and Nonofficial Remedies shall be declared on the label and in the advertising of such products.

Unfortunately, assay procedures have been attended with great difficulties. So long as the chemical identity of a vitamin remains undetermined, a statement of potency depends on reference to some reasonably stable and readily obtainable product that shows little variability with respect to the factor in question. Such well defined products have been difficult to secure. On this account the determination of potency has tended in recent years to be based on the physiologic response of a test animal to a given intake or dose of the product to be assayed. This is illustrated in the first standard procedure, for cod liver oil, to be introduced into the U. S. Pharmacopeia X—a method for measuring the content of vitamin A. It consists in ascertaining how much of the oil is required to induce growth at a selected rate of gain in body weight when the substance to be tested is added to a vitamin A free ration of defined character. Experience has shown many pitfalls and opportunities for error. The species of animal, the preliminary depletion of the test animal with respect to vitamin A, and other factors are liable to modify what is in essence a "curative" test. The details of the difficulties need not be rehearsed here. Some workers have preferred to deal with "preventive" tests whereby the quantities required to avert symptoms of avitaminosis are ascertained.

The establishment of units has been confronted with even greater difficulties. The intricacy of the subject is apparent in consideration of assays of vitamin D. Shall the criterion be growth, the mineral content of the bones, or some other symptom? And when the antiscorbutic vitamin C is brought into the fold it is found that the rat—the conventional test animal for vitamins A, B, D and G—cannot be used because it is not susceptible to lack of the factor under consideration.

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[2] Flexner, Simon: Accelerated Infection in Experimental Poliomyelitis, Science **74**: 520 (Nov. 20) 1931.

The difficulties have multiplied, and the opinions as to procedure have varied to such an extent that some concerted action seems imperative if chaos is to be averted. In the case of immune serums and likewise in the assay of insulin, tenable understandings have been reached, so that a statement of the number of "units" employed is understood the world over. Recognizing the need of a cooperative spirit and undertaking, the American Drug Manufacturers' Association established a vitamin assay committee. Its report has been presented by A. D. Holmes.[1] A conference has also been called in connection with the revision of the U. S. Pharmacopeia and a representative committee has been appointed to deal with the technical problems and terms of vitamin assay, for inclusion of revised standards in the new volume XI. The official character of this book and its semilegal status lend great importance to the deliberations of the group.

Meanwhile the Permanent Standards Commission of the Health Organization of the League of Nations has been concerned with the problem of vitamin standards and units. In the deliberations in London during June, 1931, the United States was represented by Harry Steenbock of the University of Wisconsin and E. V. McCollum of Johns Hopkins University. The London conference[2] has agreed unanimously in favor of defining vitamin units in terms of standard substances rather than in terms of a biologic test. This means that the methods of assay were not considered in detail. It was decided that "when the value in units of a test substance is to be estimated, the test substance and the standard preparation are investigated simultaneously by the same method, and the test substance should therefore show the same value in terms of the standard, whatever biologic technic is employed." The standards thus far selected are as follows: for vitamin A, one international unit is the potency of $1\ \gamma$ ($=0.001$ mg.) of pure carotene, which is converted into vitamin A in the body; for the antineuritic vitamin B, 10 mg. of a special adsorption product prepared by Seidell's method from rice polishings; for the antiscorbutic vitamin C, the activity of 0.1 cc. of fresh juice of the lemon, Citrus limonum; for the antirachitic vitamin D, the activity of 1 mg. of the international standard solution of irradiated ergosterol (viosterol), issued from the National Institute of Medical Research in Hampstead.

Some of the advantages of the plan outlined are obvious. All "units" will represent international standards referable to chemical substances that are to be made available to laboratories throughout the world. The establishment of products of fairly well defined character for vitamin assays will be welcomed. It will not do away with the necessity of biologic testing; the behavior or response of the test animal will continue to be a dominant factor in the assay process. There still remains that variability inherent in all such methods of research. Other objections will also doubtless be raised. It remains to be seen whether the American committees will agree to adopt the proposed schemes in their entirety. Of course, the ideal procedure would be a chemical analysis comparable to that by which many drugs can be examined. This eventuality may not be far away. The isolation of vitamin D or its equivalent in a state of crystalline purity has only recently been announced.[3] In any event there are signs of progress ahead.

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[1] Holmes, A. D.: J. Am. Pharm. A. 20: 588 (June) 1931.

[2] The detailed report has been published in the British Medical Journal, Nov. 7, 1931, p. 862.

[3] Crystalline Vitamin D, editorial, J. A. M. A. 97: 1628 (Nov. 28) 1931.

Current Comment

THE SUGAR IN NEPHRITIC URINE

There are numerous phenomena in physiology and pathology that are observed so frequently and intimately that their nature is taken for granted. On careful consideration, however, many such manifestations raise more questions than can be answered with any real assurance of accuracy. For example, it might properly be assumed that our knowledge of the functions of the gallbladder would be fairly complete after the many years during which this organ has obtruded itself to the attention of clinicians and physiologists. Some of the shortcomings of current information on this topic were recently referred to in The Journal.[1] Much the same sort of criticism might be applied to our knowledge of vomiting[2]—a phenomenon of daily occurrence in the bedside experience of the physician. Sometimes a critical student is led to amazement at the paucity of fundamental facts that enter into medical problems. It was known for a long time that there was some kind of "sugar" in the blood. Its actual identification as dextrose is barely older than the century. The familiar sugar of the urine was early recognized as dextrose, but presently came the demonstration that lactose may at times find its way through the kidneys. Subsequently it was learned that "normal" urine carries traces of "reducing substances" and that these are only in part fermentable as dextrose is. What they actually are remains to be learned. The story of urine carbohydrates is not yet a closed book. A significant chapter has recently been added by Hiller[3] from the Hospital of the Rockefeller Institute for Medical Research, New York. It had been known for some time that fermentable reducing substances were frequently increased in all types of nephritis and that in some of the degenerative cases the excretion amounted to gross melituria.[4] Hiller has now clearly identified the presence of dextrose (by distinction from levulose, mannose, lactose or maltose) in the renal excretion of such patients.

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[1] Gallbladder Function, editorial, J. A. M. A. 97: 105 (July 11) 1931.

[2] The Vomiting of Peritonitis, editorial, J. A. M. A. 97: 181 (July 18) 1931.

[3] Hiller, Alma: Identification of Reducing Substances in Nephritic Urine, J. Biol. Chem. 91: 735 (May) 1931.

AMERICAN FOUNDATIONS

The general impression prevails that vast sums of money are distributed by various foundations for the public welfare, but thus far little accurate information has been available as to just how much money is distributed and the uses to which it is put. In order to answer this question, the board of trustees of the Twentieth Century Foundation has canvassed the situation and made available a report on American foundations and their fields, covering distributions up to the end of 1930. The definition used indicates that a foundation must be a separate organization with its own board of trustees or directors set up to disburse money not only in operating its own activities but in particular by making direct grants to outside beneficiaries. Religious foundations are not included in the present survey. Apparently the foundations make grants to almost every phase of human activity. One hundred and twenty-two are included in the compilation. The capital funds involved amount to $853,450,114. Since seventeen foundations did not make available the facts, an estimate of approximately $1,000,000,000 seems reasonable. The largest foundations include the Carnegie Corporation with $160,000,000, the Rockefeller Foundation with almost $150,000,000, and the General Education Board with almost $94,000,000. Out of the total of $950,000,000 for all the foundations, 20 of the 122 comprise $725,559,829, or 85 per cent of the total. Grants paid during the year amounted to $52,476,137. The field of medicine and public health was most popular, receiving $18,627,222, or more than one third of all of the funds given away. General education came next. An analysis of the manner of distribution of funds for medicine and health reveals the entrance of the foundations into almost every aspect of medical care.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 11:15 a. m. on Saturday over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 12. Cold Facts About Colds.

Five Minute Health Talks may be heard over Station WBBM of the Columbia Broadcasting System at 2:25 p. m. on Monday, Wednesday and Friday.

The program for the week is as follows:

December 7. Dandruff, Dandruff Everywhere.
December 9. New Hazards for Old.
December 11. The Healthy Mind.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

GEORGIA

Dr. Hoke Appointed Surgeon at Warm Springs.—Dr. Michael Hoke of Atlanta has been appointed surgeon-in-chief of the Georgia Warm Springs Foundation, effective December 1. He succeeds Dr. Leroy W. Hubbard, chief surgeon since 1926, who, according to the report, will do extension work for the foundation. Dr. Hubbard will make trips to areas of epidemics, consult with state, county and city commissioners of health, and advise with hospitals in regard to medical treatment.

Health at Atlanta.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended November 21, indicate that the highest mortality rate (19) appears for Atlanta, and the rate for the group of cities as a whole, 11.1. The mortality rate for Atlanta for the corresponding period last year was 15.9, and for the group of cities, 11.8. The annual rate for eighty-two cities for the forty-seven weeks of 1931 was 11.8, as against a rate of 11.9 for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

ILLINOIS

Conference of Health Officers.—A conference of Illinois health officers and public health nurses will be held in Springfield, December 17-18. The principal theme of the convention will be ways and means of minimizing the effects of the economic depression on health and of extending more rapidly the newer methods of controlling epidemics. Among the subjects to be presented are poliomyelitis, whooping cough, state diagnostic laboratory in relation to health officers and practicing physicians, recent advances in immunology, convalescent serum in control of communicable diseases, toxoid as a diphtheria preventive, current statistics on diphtheria in the United States, health problems caused by the depression, White House Conference on Child Health and Protection and its medical aspects, new phases of pediatric medicine, public health nursing, economic problems of dental public health, and child hygiene work in the county health unit. Guest speakers will include Harry E. Barnard, Ph.D., director, White House Conference on Child Health and Protection, and Drs. Walter T. Harrison and Estella Ford Warner of the U. S. Public Health Service, all of Washington, D. C.; Mr. C. C. Young, director, state laboratory, Lansing, Mich., and Dr. John E. Gordon of the Detroit health department.

Chicago

Dr. Sigerist to Lecture.—Dr. Henry E. Sigerist, professor of the history of medicine and director of the Institute of the History of Medicine of the University of Leipzig, will deliver four lectures under the auspices of the University of Chicago and Rush Medical College, Institute of Medicine of Chicago, Society of Medical History of Chicago, and Northwestern University. The first lecture will be held, December 7, at the University of Chicago on "Medical Literature of the Early Middle Ages"; the second, December 8, at Rush Medical College, "Medicine of the Renaissance: Fracastor, Paracelsus, Vesalius, Ambroise Paré." The latter will be the John Dodson lecture. The third lecture will be given, December 8, on "Problems and Methods of Historical Pathology," before the Institute of Medicine at the City Club. This meeting will be preceded by an informal dinner in honor of Dr. Sigerist. The last lecture will be given, December 9, at Northwestern University, on "The Sanctuary of Asklepios in Epidauros."

Society News.—At the meeting of the Chicago Urological Society, November 25, Drs. Herman L. Kretschmer and Lawrence E. Pierson, Sioux City, Iowa, spoke on "Fibrolipomatosis of the Kidney"; Harry C. Rolnick and Clement P. O'Neill, "Skin Metastases in Carcinoma of the Bladder," and Benjamin Earl Fillis, "A Spontaneously Expanding Bougie for Ureteral Dilatation."——Dr. Charles L. Scudder, Boston, addressed a joint meeting of the Central States Society of Industrial Medicine and Surgery and the Chicago Society of Industrial Medicine and Surgery, December 2, on "Present Status of the

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[4] Hawkins, J. A.; Mackay, E. M., and Van Slyke, D. D.: J. Clin. Investigation 8: 107 (Dec.) 1929.

Treatment of Fractures."——The Chicago Laryngological and Otological Society will be addressed, December 7, by Drs. Samuel Salinger on "Nasal Deformities—Surgical Correction"; Harry L. Pollock, "Implants—History and Use," and Alice K. Hall, "Pharyngo-Mediastinal Abscess Recovery."——The Chicago Council of Medical Women, at its meeting, December 4, was addressed by Drs. Irma Aleshire and Louise O. Kappes on "Urticaria" and "Food Allergy in Children," respectively.

Health Service for University Employees.—A health service program for the staff and employees of the clinics group, University of Chicago, was approved by the board of trustees and became effective, December 1. The program will be administered by the University Health Service under the direction of Dr. Dudley B. Reed. The contribution of one dollar a month to be deducted from their salaries will be required of all employees. This money will form a fund to be used only for meeting the costs of medical and hospital service to the individual participants in the plan. The plan will be obligatory for all new appointees and reappointments with no exceptions; participation in the public health aspects of the plan will be obligatory for all present employees and full participation, including monthly payments, will be required of all present staff and employees, unless specifically exempted. The benefits to be derived include:

1. All services performed in the outpatient department of the health service: that is, ambulatory medical care.
2. House calls in the district bounded by Fifty-Third Street, Cottage Grove Avenue, Sixty-Third Street and Lake Michigan.
3. X-rays and consultations with other clinics as directed by the health service staff.
4. Refractions (not including glasses).
5. Elective correction of remediable defects after the beneficiary has been a participant in the plan for not less than one year.
6. All necessary hospital expenses up to two months of hospital care, for conditions commonly cared for in the University of Chicago Clinic. This covers accommodations at minimum rates. More expensive accommodations may be occupied, the difference in cost to be met by the individual.

The plan does not include:

1. Hospitalization for tuberculosis, mental and chronic diseases not ordinarily admitted to the clinics except that such cases may be received for purposes of diagnosis.
2. Prenatal and obstetric care.
3. Elective operations for remediable defects discovered at time of employment, it being understood that persons having such defects which might interfere with the proper performance of their duties would, as a condition of their employment, be required to have these defects remedied within three months at their own expense or on their own responsibility.
4. Glasses, appliances and medicines except so far as any of these are included as part of the ordinary hospital care.
5. Dental service, except consultation for diagnosis on request of the health service.

A committee of participants will be formed to advise with the University Health Service. According to Dr. Franklin C. McLean, director, University Clinics, the plan has been under consideration for more than a year.

INDIANA

Personal.—Dr. John W. Morr, Albion, has been appointed health officer of Noble County to succeed the late Dr. John H. Ravenscroft.——Dr. George W. Washburn, Star City, has resigned as health officer of Pulaski County on account of ill health; Dr. Thomas E. Carneal, Winamac, was appointed to fill the unexpired term.

Society News.—The Elkhart County Medical Association was addressed, November 5, by Dr. Ralph M. Waters, Madison, Wis., on "Oxygen Deficiency."——A feature of the Wayne-Union County Medical Society's meeting, November 6, was the presentation of motion pictures on "Anatomy of Female Pelvis and Perineum," "Abdominal Subtotal Hysterectomy for Fibroids," and "Repair of Urethrocele, Cystocele and Laceration of Cervix."——Dr. Donald C. McClelland, LaFayette, addressed the Jasper-Newton County Medical Society, October 30, on "Irradiation Treatment of Benign Uterine Hemorrhage."——A plan for care of the indigent sick was discussed by Dr. Edwin L. Libbert at the October 29 meeting of the Dearborn-Ohio County Medical Society at Lawrenceburg.——Dr. Robert S. McCaughey, Danville, Ill., addressed the Fountain-Warren County Medical Society at Hillsboro, November 5, on "Disease of the Colon."——Dr. Edgar F. Kiser, Indianapolis, addressed the Hancock County Medical Society at Greenfield, November 6, on "History of Medicine," and J. T. Waldo, D.D.S., "History of Dentistry."——The Thirteenth District Medical Society was addressed, November 4, among others, by Drs. Harold A. Quint, Evanston, Ill., on "Injection Treatment of Varicose Veins"; Francis V. Martin, Michigan City, "Bacterial Endocarditis"; Mark M. Piper, Rochester, "Prenatal Care, with Special Reference to the Offspring"; James L. Wilson, South Bend, "Toxic Thyroid"; Henry J. Graham, Mishawaka, "Appendicitis in Children," and William H. Holmes, Chicago, "Nephritis."——Dr. Lowell G. Hunter, Versailles, addressed the Ripley County Medical Society at Osgood, November 4, on surgery of the sympathetic nervous system.——The Rush County Medical Society was addressed, November 2, by Dr. Frank C. Walker, Indianapolis, on "Pelvic Infections."——Dr. Raymond W. McNealy, Chicago, addressed the Academy of Medicine, Terre Haute, November 6, on "Blood Vessel Surgery, Past and Present."

KANSAS

Society News.—The Wyandotte County Medical Society was addressed, November 3, by Judge William H. McCamish on "Expert Medical Testimony" and Mr. Joseph Cohen, "The Law of Malpractice." The society was addressed, November 17, by Drs. Earle G. Brown, Topeka, on "Epidemiology of Infantile Paralysis"; James R. Elliott, Kansas City, Mo., "Management of Poliomyelitis During the Stage of Recovery," and Elam A. Reeves, Kansas City, "Placenta Praevia."——Dr. Russell E. Hobbs, Wichita, and other health officers conducted a discussion on "Immunization Measures and Demonstration of Schick Tests" before the Sedgwick County Medical Society, November 17, and Dr. Morton E. Brownell spoke on "Etiology and Treatment of Acute Iritis."

KENTUCKY

Society News.—The Hopkins County Medical Society was recently reorganized at Madisonville after several years of inactivity.——Members of the Daviess County Medical Society at a meeting in Owensboro, November 10, heard addresses by three Louisville physicians: Drs. James R. Stites, "Surgical Pathology of the Kidney"; Charles D. Enfield, "Urological Roentgenology," and Louis Wallace Frank, "Malignancy."——Dr. Hiram B. Weiss, Cincinnati, addressed the Campbell and Kenton County Medical Society, Dayton, November 19, on "Clinical Aspects of Coronary Disease."——At the fall meeting of the Fifth District Medical Society, Carrollton, November 12, speakers were three Louisville physicians: Drs. Philip F. Barbour, on "Pneumonia in Children"; Adolph O. Pfingst, "Fracture of the Skull as Related to the Eye," and Benjamin F. Zimmerman, "Encephalography and Ventriculography."

MAINE

Personal.—Dr. James A. Spalding, Portland, was given a complimentary dinner, September 25, by his associates. A portrait of Dr. Spalding was given to the Maine General Hospital in recognition of his service to that institution.

Society News.—The Penobscot County Medical Society was addressed, October 20, by Dr. Magnus F. Ridlon, Bangor, on surgical aspects of certain gynecologic conditions; two motion pictures with sound illustrated the talk.——Speakers who addressed the York County Medical Society, October 21, were Drs. Clinton N. Peters, Portland, on "Modern Urological Diagnosis"; Chester F. McGill, Portsmouth, N. H., "Posterior Occipital Presentation"; Lawrence R. Hazzard, Portsmouth, "Retrocecal Appendicitis," and George C. Wilkins, Manchester, "Uses of Radium."

MICHIGAN

Society News.—Dr. Raphael Isaacs, Ann Arbor, addressed the Wayne County Medical Society, Detroit, December 1, on "Present Status of Diagnosis and Treatment of Anemia."——The Oakland County Medical Society was addressed, November 19, in Pontiac, by Dr. Plinn F. Morse, Detroit, on "Comparative Anatomy and Development of the Kidneys and Their Clinical Application."

Personal.—Dr. Alvin H. Rockwell, for twenty-three years health officer and director of health and welfare of Kalamazoo, has offered his resignation, effective January 1.——Dr. William J. V. Deacon was elected president of the Michigan Public Health Association at its meeting in Lansing, November 11; Dr. John D. Monroe, Pontiac, vice president, and Miss Marjorie Delavan, Lansing, secretary.

Society Adopts Dime-a-Day Plan.—A sum of money will be donated to the Emergency Relief Fund of Detroit, through a dime-a-day plan recently adopted by the Wayne County Medical Society. A large box for contributions has been placed in the society's café, where an average of 100 members eat every day, and it is expected that more than $200 will be realized each month for donation to the fund.

Annual Clinic of Physicians' Club.—The sixth annual clinic of the Highland Park Physicians' Club was held at the Highland Park General Hospital, December 5. The program included papers by Drs. Carey Culbertson, Chicago, on "Management of Pelvic Infections, Acute and Chronic: Conservative and Operative Treatment"; Cyrus E. Burford, St. Louis, "Diagnosis and Management of Stone in the Kidney and Ureter"; John J. Moorhead, New York, "Practice of Traumatic Surgery"; Edwin M. Miller, Chicago, "Problems in Surgery in Children"; Harry S. Gradle, Chicago, "Etiology of Ocular Diseases"; Lee Wallace Dean, St. Louis, "Sinusitis in Children"; Albert Graeme Mitchell, Cincinnati, "Certain Phases of Nutrition in Childhood"; Marion A. Blankenhorn, Cleveland, "Neurological Aspects of Pernicious Anemia"; Frank H. Lahey, Boston, "Carcinoma of the Colon and Rectum: Its Diagnosis and Surgical Treatment," and Daniel L. Sexton, St. Louis, "Disorders of the Hypophysis." In the evening there was a stag buffet supper with entertainment.

NEW JERSEY

Society News.—The Essex County Medical Society held a demonstration clinic on syphilis at its meeting in Newark, November 12, in which the participants were Drs. Harrison S. Martland, Charles Englander, Francis J. McCauley, Newark, and Arthur J. Casselman, Camden.——Dr. Henry L. Bockus, Philadelphia, addressed the Camden County Medical Society, Camden, November 3, on diarrhea.——Dr. Nicholas M. Alter, Jersey City, addressed the Hudson County Medical Society, November 4, on "Practical Aspects of Nephrosis."——Dr. Mather Cleveland, New York, addressed the Bergen County Medical Society, Hackensack, October 16, on "Orthopedic Treatment of Poliomyelitis."——Dr. George M. Dorrance, Philadelphia, addressed the Cumberland County Medical Society, Bridgeton, October 13, on traumatic surgery.——Dr. Wells P. Eagleton, Newark, spoke on "Traumatism of the Frontal and Temporal Regions in Relation to Meningitis" before the Middlesex County Medical Society, Perth Amboy, October 21.——Dr. Henry W. Cave, New York, addressed the Passaic County Medical Society, Paterson, October 8, on "Difficulties Encountered in Operations on the Common Bile Duct."——Among speakers at the annual meeting of the Tuberculosis League of New Jersey, Trenton, October 16, were Drs. Donald B. Armstrong, New York, on tuberculosis in children, and John Bennett Morrison, Newark, "Rôle of the Physician in the Tuberculosis Fight."

NEW YORK

Grade B Raw Milk Abolished.—After July 1, 1932, grade B raw milk will be discontinued in New York. This grade was established in 1928 as a temporary measure to allow producers an opportunity to have their herds tuberculin tested. Its requirements were exactly the same as those for grade A raw milk except that such milk was not required to be from tested cows. In view of the fact that only a small amount of this grade of milk is now being sold, the Public Health Council, November 11, amended the sanitary code to eliminate it, effective July 1, 1932, thus allowing time for the testing of the remaining herds supplying this grade of milk.

County Society Celebrates One Hundred and Twenty-Fifth Anniversary.—The Medical Society of the County of Albany held its one hundred and twenty-fifth annual meeting at a dinner in Albany, October 28. Dr. George W. Crile, Cleveland, made an address on the evolution of the nervous system. Dr. Charles K. Winne, Jr., president of the society, gave an historical summary of the regulation of the practice of medicine in New York since the seventeenth century. Dr. William D. Johnson, Batavia, president of the Medical Society of the State of New York, and Mayor Thacher of Albany also addressed the meeting. Twelve former presidents of the society were present, including Dr. Frederick C. Curtis, Albany, who held the office in 1878.

Society News.—Dr. Royal H. Mayhew, among others, addressed the Franklin County Medical Society, Malone, October 28, on "Home Treatment Versus Sanatorium Treatment in Pulmonary Tuberculosis."——The twenty-fifth annual meeting of the fourth district branch of the Medical Society of the State of New York was held in Glens Falls, October 21-22. The speakers included the following: Dr. Wilder G. Penfield, Montreal, on "Neurology in General Practice—Early Diagnosis of Remediable Lesions"; Dr. Samuel T. Orton, New York, "Obstacles to the Development of Language Function in Children," and Dr. Walter J. Craig, Albany, "The State Orthopedic Program," and John R. Parker, Schenectady, "The Lawyer and Physician in Welfare Work."——Dr. Earl Dorland Osborne, Buffalo, addressed the Schoharie County Medical Society, Cobleskill, October 13, on "Common Skin Diseases, Exclusive of Eczema."——Dr. Arthur B. Soule, Jr., of the University of Vermont School of Medicine, Burlington, among others, addressed the Medical Society of the County of Washington, Hudson Falls, October 6, on "Studies of the Renal Function."——Dr. Clayton W. Greene, Buffalo, presented a paper on "The Medical Man's Attitude on the So-Called Acute Abdomen" before the Genesee County Medical Society, Batavia, October 26.——Four New York physicians presented a symposium on cancer at a meeting of the Yonkers Academy of Medicine, November 18, as follows: Drs. William P. Healy, "Diagnosis and Treatment of Cancer of the Female Genital Organs"; Ralph E. Herendeen, "Indications for Roentgen-Ray Therapy"; Frank E. Adair, "Treatment of Primary Operable Cancer of the Breast," and George T. Pack, "Melanomas and Pigmented Nevi."——A series of lectures on traumatic surgery was sponsored by the Wayne County Medical Society at Lyons during October and November, with the following speakers: Drs. Henry H. Ritter, New York, on injuries to the head; Henry M. Bergamini, internal injuries; David Goldblatt, burns; Emmett A. Dooley, infections and wounds of the hands, and Seth M. Milliken, common fractures.——Dr. Foster Kennedy, New York, addressed the Medical Society of the County of Nassau, Mineola, November 24, on "Head Injuries."

New York City

Faculty Changes at Columbia.—Dr. Allen O. Whipple has been appointed to the Valentine Mott professorship of surgery, which was recently established at the College of Physicians and Surgeons, Columbia University, and Dr. Israel S. Wechsler has been promoted to the professorship of clinical neurology. Dr. Russell A. Hibbs has resigned as professor of orthopedic surgery.

Personal.—Dr. Alfred F. Hess was recently elected to honorary membership in the German Pediatric Society.——Dr. William S. Ladd, formerly on the faculty of the College of Physicians and Surgeons, Columbia University, has been appointed assistant professor of medicine and associate dean of Cornell University Medical College.——Dr. Clyde Wilson Collings was made an honorary member of the French Urological Association in October, when he addressed the annual congress on "Relief of Bladder Neck Obstruction by Electrosurgery."

Gifts for Research.—New York University has recently announced the following gifts for medical research:

Commonwealth Fund, $5,000 for research in rheumatic fever under direction of Dr. William H. Park; $1,750 to Dr. Park for investigation on antipneumonia serum; $1.750 for the Clinical Pediatrics Research Fund in Pneumonia, under direction of Dr. Charles Hendee Smith.

Harriman Research Fund, $8,750 additional for that fund.

Anonymous donor, $10,000 for the Neurological Research Laboratory Fund.

R. T. Crane, Jr., $5,000 for the department of therapeutics.

International Committee for Study of Infantile Paralysis, $3,000 for study of infantile paralysis under Dr. Park.

Josiah Macy, Jr., Foundation, $3,000 for study of chorea under Dr. Smith.

Chemical Foundation, $1,000 for research on pneumonia.

Health Products Corporation, $1,000 for the Pernicious Anemia Fund.

Oxygen Penthouse.—A penthouse containing two oxygen chambers and a room for the treatment of dust asthma and hay fever has been completed on the roof of the Presbyterian Hospital. The oxygen chambers are equipped for the treatment of patients with pneumonia, cardiac failure and other diseases in which the lungs are affected. A dust filtering apparatus has been installed for the treatment of cases of asthma and hay fever. Oxygen is supplied from a central station, with a separate station for the use of carbon dioxide therapy in conjunction with oxygen therapy. The atmosphere is under thermostatic control. These rooms are for private and semiprivate patients, representing an addition to the oxygen chamber in the hospital proper. The chambers are the gift of Dr. Herman B. Baruch; the building itself was erected by the hospital.

Lectures on Social Problems of Tuberculosis.—The New York Tuberculosis and Health Association is sponsoring a series of lectures in cooperation with the New York School of Social Work on "Current Significance of Tuberculosis as a Social Work Problem." Lectures have been given by Louis I. Dublin, Ph.D., November 10, on trends in the past twenty-five years and possible effects of the present economic situation; Dr. Iago Galdston, November 19, etiology and immunity and different forms of tuberculosis; Dr. James Burns Amberson, Jr., November 24, diagnosis and complications of the disease and Dr. Grant Thorburn, December 1, treatment. Bailey B. Burritt, director, Association for Improving the Condition of the Poor, will speak, December 8, on "Tuberculosis and the Family"; Dr. Dwight Clifford Martin of the city department of health, December 15, "Administrative Control of Tuberculosis in New York City," and Dr. Linsly R. Williams, president of the tuberculosis and health association, December 22, on "Opportunity of the Social Worker to Help Control Tuberculosis."

NORTH CAROLINA

Hospital News.—Laurel Hospital, White Rock, in Madison County, has been closed by the Presbyterian Board of National Missions, after fifteen years' service. It was said that improvement in transportation and communication made the maintenance of a hospital in this once isolated region no longer necessary.——Physicians representing fourteen counties were guests of the Wayne County Medical Society, Goldsboro, at a meeting, October 3, at which Dr. Hubert A. Royster, Raleigh, spoke on treatment of wounds.

PENNSYLVANIA

Personal.—Drs. William H. Mayer, Pittsburgh, and Charles Falkowsky, Jr., Scranton, president and president-elect, respectively, of the Medical Society of the State of Pennsylvania, were guests of honor at a reception given by the Medical Club of Philadelphia, October 16.——Dr. James P. Roth has been appointed surgeon-in-chief of the Locust Mountain State Hospital, Shenandoah, succeeding the late Dr. Herbert H. Holderman.——Dr. Jesse L. Lenker, Harrisburg, was recently elected president of the Pennsylvania Heart Association.

Philadelphia

Society News.—Dr. Bernard Glueck, New York, addressed the Philadelphia County Medical Society, November 25, on "Principles of Psychoanalysis and the Practical Results That May Be Achieved Through This Procedure."——Dr. Basil R. Beltran delivered the postgraduate seminar of the Philadelphia County Medical Society, November 20, on "Surgery of the Vascular System." Dr. Robert G. Torrey gave the lecture, November 27, on tuberculosis.——The forty-fifth annual dinner of the Association of Ex-Resident and Resident Physicians of the Philadelphia General Hospital was held, December 1, at the Pennsylvania Hotel.

Personal.—Dr. Emily Lois Van Loon has been appointed acting head of the department of otolaryngology and bronchoscopy at the Woman's Medical College of Philadelphia, succeeding the late Dr. Margaret F. Butler.——Dr. David H. Bergey, formerly professor of hygiene and bacteriology, University of Pennsylvania School of Medicine, has been appointed director of research in biology for the National Drug Company.——Ernest Fullerton Cook, Pharm.M., of the Philadelphia College of Pharmacy and Science, was tendered a testimonial dinner, November 16, at which he was presented with the Remington Medal for 1931 (THE JOURNAL, August 1, p. 329). The dinner was given under the joint auspices of the New York and Philadelphia branches of the American Pharmaceutical Association.

Alvarenga Prize Awarded.—The Alvarenga Prize of the College of Physicians of Philadelphia for 1931 has been awarded to Dr. Edgar S. J. King, Melbourne, Australia, for an essay entitled "The Nature of the Stroma of the Ovary." The next award of this prize, which amounts to about $300, will be made July 14, 1932. Essays may treat any subject in medicine but must not have been printed previously or presented in competition for any prize. They must be sent without signature, marked with a motto and accompanied by a sealed envelop containing the name and address of the author. Entries must be received by the secretary of the college by May 1, 1932. Winners of the Alvarenga Prize in recent years have been Drs. H. A. Harris, University College Hospital, London; George M. Dorrance, Philadelphia; J. R. Paul and William U. McClenahan, Philadelphia.

TEXAS

Personal.—Dr. Lorenzo P. McCuistion, Paris, has been selected as the 1931 recipient of a certificate of distinction awarded annually by the Winfield F. Brown post of the American Legion at Paris to a distinguished citizen of the town. Dr. McCuistion, a native of Lamar County, was graduated from the Kentucky School of Medicine in 1889 and has spent all his professional life in Paris. In 1912, with other Paris citizens, he established the Sanitarium of Paris, of which he is physician in charge.

Society News.—Dr. Andrew G. Cowles, San Antonio, addressed the Bexar County Medical Society, October 1, on "Value of Complete Urologic and Gynecologic Examination."——Drs. Harry G. Walcott and Ben R. Buford, Dallas, addressed the Coleman County Medical Society, Coleman, October 1, on "Abdominal Conditions Producing Heart Symptoms" and "Heart Conditions Producing Abdominal Symptoms," respectively.——Dr. Waldo B. Lasater, Mineral Wells, among others, addressed the Palo Pinto County Medical Society, October 5, on "Resuscitation of the New-Born."

WEST VIRGINIA

Society News.—Dr. Raleigh R. Huggins, Pittsburgh, addressed the Ohio County Medical Society, Wheeling, November 20, on "The Present State of Conservatism in the Treatment of Salpingitis." Dr. George W. Crile, Cleveland, addressed the society, November 6, on "Emergencies in Medical and Surgical Practice."

Hospital News.—A new $100,000 hospital with a capacity of sixty beds was completed at Keyser in October. The new building, known as the Potomac Valley Hospital, is owned by Drs. Thomas E. and Robert W. Bess, replacing the old Hoffman Hospital. It is fully equipped for laboratory and roentgenray work and maintains a nursing school as well as a course for laboratory technicians.——St. Joseph's Hospital, Parkersburg, has recently taken possession of a new $500,000 building with a capacity of 100 beds, 12 more than in the old building.

GENERAL

Foundation to Advance Psychoanalysis.—The American Psychoanalytic Foundation has recently been formed in New York for the purpose of fostering psychoanalytic education and science in America. The foundation is incorporated in the state of New York and succeeds the Educational Trust Fund formed by the New York Psychoanalytic Society several years ago. The board of directors of the new organization includes Dr. Abraham A. Brill, chairman, Dr. Smith E. Jelliffe, Mr. Leo S. Bing, Mr. Sam A. Lewisohn and Dr. Clarence P. Oberndorf, 112 West Fifty-Ninth Street, New York, secretary. Mr. Alfred L. Rose is counsel for the foundation.

Annual Seal Sale for Tuberculosis.—The National Tuberculosis Association, through its 2,084 constituent state and local societies, began its twenty-fifth annual seal sale, Thanksgiving Day. Tuberculosis still causes the greatest number of deaths of persons between 15 and 45, the association's statistics show. The first sale of tuberculosis seals yielded only a little more than $3,000; the amount raised by this method in 1930 was $5,300,000. During this quarter century more than 500 sanatoriums have been constructed; clinics for early diagnosis and preventoriums for early care have been established; the tuberculin test and the diagnostic use of the roentgen ray have been brought to a high degree of efficiency, and methods of educating the general public have been developed.

Leslie Dana Medal Awarded.—The Leslie Dana Gold Medal, awarded annually for "outstanding achievements in the prevention of blindness and the conservation of vision," was presented to Edward M. Van Cleve, New York, principal of the New York Institute for the Education of the Blind, at a meeting in St. Louis, November 20. Mr. Van Cleve was selected by the National Society for the Prevention of Blindness in cooperation with the St. Louis Society for the Blind, through which the medal is offered by Leslie Dana, St. Louis. Mr. Van Cleve assisted in the formation in 1915 of the National Society for the Prevention of Blindness, sponsored by the Russell Sage Foundation, and became its first managing director, a position he held for nine years. At one time he was president of the Ohio State Commission for the Blind and, in 1907, was superintendent of the Ohio State School for the Blind. The medal was awarded last year to Dr. George E. de Schweinitz, Philadelphia.

Obstetricians Amend Constitution to Increase Membership.—At the third annual meeting of the Central Association of Obstetricians and Gynecologists in Chicago, October 28-31, the constitution of the association was amended to permit the admission to membership of physicians, resident in states which operate wholly or in part on Central standard time. Through this action physicians resident in Indiana, Michigan, Oklahoma, Ohio, North Carolina and Georgia become eligible to membership provided they (1) are in good professional standing, (2) have been graduated for five years or more, (3) have had special training in obstetrics and gynecology, and (4) have their major interests in the specialty. Dr. Rudolph W. Holmes, Chicago, was installed as president of the association at this meeting, and Dr. Percy W. Toombs, Memphis, Tenn., made president-elect; Dr. Jennings C. Litzenberg, Minneapolis, was elected vice president, and Dr. Everett D. Plass, Iowa City, reelected secretary.

Inventors of Respirator Receive Award.—Philip Drinker, assistant professor of ventilation and illumination, and Louis Agassiz Shaw, instructor in physiology, Harvard School of Public Health, Boston, joint inventors of the "Drinker respirator," received the John Scott Award administered by the

Philadelphia Board of City Trusts at a meeting at Franklin Institute, November 18. Each received a copper medal, and the honorarium of $1,000 was divided between them. The fund for the John Scott Award was given to the city of Philadelphia under the terms of the will of John Scott, a chemist of Edinburgh, Scotland, who died in 1816, to reward those whose inventions "add to the comfort, welfare and happiness of mankind." Among those who have received the award for medical work within recent years have been Drs. Afranio do Amaral of the Antivenin Institute of America, Alfred F. Hess, New York, and Francis Peyton Rous, New York, in 1927, and W. T. Bovie, Ph.D., professor of biophysics, Northwestern University, Chicago, in 1928. The Drinker respirator, which was perfected in 1930, has been used in the treatment of infantile paralysis, drowning, asphyxiation, electrical shock and drug poisoning. Mr. Drinker is the son of Henry S. Drinker, LL.D., Merion Station, Pa., former president of Lehigh University, and Mr. Shaw is the grandson of Louis Agassiz, famous educator and scientist.

Society News.—At the recent annual meeting of the Clinical Orthopedic Society, Dr. William Barnett Owen, Louisville, was elected president; Dr. Rexford L. Diveley, Kansas City, Mo., vice president, and Dr. Eugene B. Mumford, Indianapolis, reelected secretary. The next annual meeting of the society will be held in Chicago.——The American Society for the Study of Arthritis met in Pittsburgh, December 3-4. At an open meeting, December 3, Dr. Reginald Burbank, New York, discussed "Streptococcic Complement Fixation Test in Arthritis" and Dr. Henry Warren Crowe, London, England, "The Pathogen Selective Blood Test as Applied in Arthritis."——The Mid-South Post Graduate Assembly, formerly Tri-States Medical Association of Mississippi, Arkansas and Tennessee, will hold its next annual meeting in Memphis, February 9-12. Dr. Arthur F. Cooper, Memphis, is secretary.——The second annual meeting of the National Conference on Nomenclature of Disease will be held, December 14, at the New York Academy of Medicine, New York.——Dr. Lewis J. Moorman, Oklahoma City, was elected president of the Southern Medical Association at the annual meeting in New Orleans, November 18-20. The association will meet in Birmingham, Ala., in 1932.——The next session of the Inter-State Postgraduate Medical Association of North America will be held in Indianapolis, Oct. 24-28, 1932.

Yellow Fever Volunteers Receive Congressional Medals.—The gold medals authorized by Congress in 1929 for the recognition of the late Dr. Walter Reed and his associates in the famous yellow fever experiments of 1900-1902 have recently been dispatched to the fifteen volunteers who are still living and to the heirs of the seven who have died, according to press reports. Each medal bears the name of the recipient on one side and the words "Conquest of Yellow Fever" on the other. Posthumous awards were for Drs. Reed, Aristides Agramonte, James Carroll and Jesse W. Lazear, who made up the army commission, and for Edward Weatherwalks, Warren G. Jernegan and William H. Dean. Medals were also sent to the following men:

John H. Andrus, Elmira, N. Y
John R. Bullard, Cuba.
A. W. Covington, Cohocton, N. Y.
Wallace W. Forbes, Minneapolis
Levey E. Folk, Columbus, Ohio
Paul Hamann, East Moline, Ill.
James L. Hanberry, Denmark, S. C.
John R. Kissinger, Huntington, Ind.
William Olsen, Los Angeles.
John J. Moran, Mexico City.
Charles G. Sonntag, Jackson, S. C.
Clyde L. West, Toledo, Ohio.
Dr. Robert P. Cooke, Lexington, Va.
Thomas M. England, Washington, D. C.
James Hildebrand, Atlanta, Ga.

Pensions of $125 per month were granted at the same time to all those on the latter list and to the widow of Private Weatherwalks.

CANADA

Hospital Council Organized.—A federation of all provincial, interprovincial, religious and other hospital associations in Canada, to be known as the Canadian Hospital Council, was organized in September. The aims and objects as outlined in the constitution include the following: (1) to coordinate activities of hospital organizations in Canada, (2) to study hospital problems and the relationship of the hospital to the public, (3) to cooperate with other agencies, (4) to study hospital legislation in Canada and (5) to form a nucleus from which may be formed later a Canadian Hospital Association if such a development should be deemed advisable. Dr. Fred W. Routley, Toronto, was named president of the council and Dr. George Harvey Agnew, Toronto, secretary.

Health Regulations Changed.—The department of health of Ontario has recently rewritten the regulations concerning communicable disease, making them conform to recent concepts of epidemiology and bacteriology. Under the new regulations forty-five diseases are notifiable, in comparison with forty-two on the previous list. Goiter and pellagra were removed from the list and five diseases were added, as follows: ancylostomiasis, erysipelas, infectious or epidemic jaundice, undulant fever and trench mouth. Placarding is no longer required for chickenpox, German measles and mumps. The isolation period for measles was shortened to seven days and immunes from quarantined homes are now allowed to attend school. Poliomyelitis contacts are now quarantined for ten days. The isolation period was also increased for smallpox and reduced for scarlet fever. Other regulations deal with the handling of milk, burial and transportation of the dead, and disinfection.

FOREIGN

Lectures of College of Physicians.—Dr. John S. Fairbairn delivered the Bradshaw Lecture before the Royal College of Physicians, November 3, on "Medical and Psychological Aspects of Gynecology." The Fitzpatrick Lectures were delivered by Dr. James S. Collier, November 5 and 10, on "The Development of Neurology from the Commencement of the Nineteenth Century to the Present Time."

New Journal on Maternity Problems.—A new monthly journal, the *Boletín de la Maternidad*, has recently appeared as the organ of the Department of Maternity Hospitals and Prenatal Clinics of the Sociedad de Beneficencia Pública of Lima, Peru. Drs. H. Larraburc and N. Cavassa are the editors. The first and second issues, July and August, contain articles on obstetrics, infant mortality, infant psychology, mental hygiene, statistics of the maternity hospital of Lima, and general news.

Memorial to Sir Charles Hastings.—The British Medical Association has opened a fund to establish a memorial to its founder, Sir Charles Hastings, in celebration of its centenary, which occurs in 1932. A stained glass window in his honor will be placed in the cathedral at Worcester, the city with which Hastings was most closely identified; a tablet will be placed on the house in Worcester where he practiced, and his grave in the Astwood cemetery in that city will be restored and cared for. Any balance remaining after these objects have been attained will be turned over to the Sir Charles Hastings Fund, the income of which is distributed for the benefit of members of the medical profession and their dependents according to the discretion of its trustees. The opening ceremony of the centenary meeting of the association will be a pilgrimage to Worcester, July 24, 1932, when the memorial window and plaque will be unveiled.

Course in Ophthalmology.—The ninth graduate course in ophthalmology given under the auspices of the American Medical Association of Vienna will be offered between Oct. 1 and Dec. 6, 1932, at the I and II Eye Clinic of the Allgemeines Krankenhaus, Vienna. Lectures will be given by Prof. Josef Meller and Prof. Karl Lindner, chiefs of the clinics, as well as other members of the staff. Members of other departments will lecture on their respective subjects, including roentgen rays, the hypophysis and sinuses, endocrine disturbances, radium treatment, embryology and the modified West operation. This course, which was originated ten years ago at the suggestion of Dr. Edward Jackson, Denver, is given in English for a minimum of ten and a maximum of seventeen physicians, at a fee of $250 each. A preliminary knowledge of ophthalmology is presupposed. Applications with a certified check for $100 should be sent to Dr. Adalbert Fuchs, Vienna VIII, Skodagasse 13. Further information may be obtained from Dr. Fuchs or from the American Medical Association of Vienna, Alserstrasse 9, Café Edison.

Society News.—Physicians who wish to participate in the International Congress of Tropical Medicine to be held in Amsterdam, Sept. 12-17, 1932, are requested to notify the secretary, Dr. E. P. Snijders, Institute for Tropical Hygiene, Amsterdam, not later than December 31.——The Third International Congress of Sanitary Technics and Urban Hygiene will be held at Lyons, France, March 6-9, 1932. Information may be obtained from M. le Docteur Garin, Conseiller Municipal, Rue Ménestrier, Lyons.——The Ninth International Congress of the History of Medicine will be held in Bucharest in September, 1932. The principal subjects for discussion will be the evolution of medicine in the Balkan states and the protection of Europe against bubonic plague. Those wishing to contribute papers are requested to forward the title and a summary of the paper to the office of the congress, Str. Stirbey Voda, 86, Bucharest II, without delay.——The ninth congress of the International Society of Surgery will be held in Madrid, March 15-18, 1932, under the presidency of Dr. Quervain. Topics for discussion will be: diagnosis and treatment of intraspinal tumors, nontuberculous suppurations of the lung, surgery of the esophagus, and recent progress of anesthesia in surgery.

Government Services

Col. Skinner Wins Wellcome Medal

The Henry S. Wellcome medal and prize of $500 have been awarded to Col. George A. Skinner, chief surgeon, seventh corps area, U. S. Army, Omaha, for a paper on "The Influence of Epidemic Disease on Military Operations in the Western Hemisphere." The award was to be made during the annual meeting of the Association of Military Surgeons of the United States, New Orleans, November 30-December 2. The Wellcome award was established in 1916 to encourage study and research on problems connected with the health of armies and the efficiency of the medical services. The competition is open to all medical officers, former medical officers, acting assistant and contract surgeons of the army, navy, health service, national guard, volunteers and reserves and commissioned medical officers of foreign military services.

Annual Report of Surgeon General of Army

Automobiles were the leading cause of death in the United States Army in 1930, according to the annual report of Surg. Gen. Robert U. Patterson. If it had not been for the material increase in the number of deaths from automobile accidents, the mortality rate for the year would have been the lowest on record. All but eleven of the seventy-two deaths from this cause occurred in privately owned cars. Suicides, which, during eight of the preceding nine years, had led the list, were second, and tuberculosis was third, with drowning and cancer in fourth and fifth positions. The average daily strength of the army was 137,299. There were 50,910 enlistments in 1930 as compared with 61,898 in 1929. The annual hospital admission rate from all causes (608 per thousand men) was the lowest recorded in the history of the army. The most notable advance was in the control of communicable diseases, and especially of those transmitted through the gastro-intestinal tract: typhoid, diarrhea and dysentery. The leading causes of admission were bronchitis, gonorrhea, acute tonsillitis, athletic exercises and chronic tonsillitis. The number of malarial fevers was reduced to less than 800 in each hundred thousand men. During the year, 1,546,786 days were spent by the military personnel on sick report, as compared with 1,551,915 in 1929. Of the average 6,815 patients in hospital each day, 62 per cent were in general hospitals, the cost per patient day having been $5.07, a decrease of $0.14 as compared with that of the previous year. The average daily noneffective rate from disease was 30.9 as compared with 31.3 in 1929 and 30.2 in 1928, and the leading causes were gonorrhea, tuberculosis, syphilis, athletic exercises and automobile accidents. The leading causes of disability were dementia praecox, tuberculosis, constitutional psychopathic state, mental deficiency and pes planus. The admission rate (47.7) for venereal diseases was the lowest in the history of the army; the group caused 7.9 per cent of all admissions to hospitals and quarters, 16.3 per cent of the loss of time on account of sickness, 4.6 per cent of the discharges for disability, and about 2 per cent of the deaths. Since the inauguration of the campaign for the prevention of venereal disease in 1909, the army rate has been reduced 73 per cent. The rate for influenza was the lowest recorded since 1888. The report exhibits the vital statistics of the regular army for the calendar year ended Dec. 31, 1930, and covers the general activities of the medical department for the fiscal year ended June 30, 1931.

Typhoid at Fort Des Moines

The first explosive outbreak of typhoid in the United States Army since the close of the World War occurred during October in Battery E, Seventeenth Field Artillery, Fort Des Moines, Iowa, according to the surgeon general's monthly review of the health of the army. Between September 22 and October 31, twenty probable cases of typhoid were admitted to the hospital. Specimens for examination were sent to the Sixth Corps Area laboratory at Fort Sheridan, Illinois, and to the Army Medical School. A report, November 7, showed eighteen cases diagnosed as typhoid and two as fever undiagnosed. All the patients had been inoculated. No deaths had occurred up to the time of the report.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 7, 1931.

Vitamin Standards and Units

A conference of scientific investigators has been held in London under the auspices of the health organization of the League of Nations to consider the establishment of an international standard for the vitamins, defining for each vitamin an arbitrary unit of activity and methods of testing. The members of the conference were drawn from several European countries and the United States. The first question was whether to define in terms of a biologic test or a standard substance. The latter was unanimously adopted.

VITAMIN D

The preparation of irradiated ergosterol (viosterol) already issued from the National Institute of Medical Research was chosen as the international standard for vitamin D. This has been used for more than a year as vitamin D standard in Great Britain. At room temperature it loses potency, but it has been found to remain stable for two years when preserved at 0 C. in the absence of air. The method of preparing the standard solution was defined, and it was agreed that when renewal became necessary laboratories in different countries should cooperate in comparing the new standard solutions with the old so as to insure equivalence. The unit of vitamin D was defined as the activity of 1 mg. of the international standard solution of irradiated ergosterol. If the vitamin is isolated in pure crystalline form during the next few years, the international unit can be redefined in terms of this form.

VITAMIN A

Two substances suggested themselves as standards for vitamin A—cod liver oil and carotene. The fact that the oil, particularly when first expressed, undergoes a loss of vitamin A from oxidation impairs its suitability as a standard. But after a few years further change is slow. Pure carotene, which is transformed into vitamin A in the liver, produces the physiologic effects of vitamin A when given in very small doses. Little is known as to the stability of carotene in respect to its vitamin A action. The fact that it consists of two isomers is of little importance, for they have been found to possess almost similar biologic activity. The conference recommended the adoption of carotene temporarily as an international standard for vitamin A, with a selected sample of cod liver oil as a second provisional standard. Further investigation will be necessary before the permanent reliability of carotene is assured. The carotene is to be made from a number of pure samples prepared in certain specified laboratories by Willstater's method. The unit is the vitamin potency of 0.001 mg. of the resulting mixture.

VITAMIN B

The absorption product prepared in the Medical Laboratory, Java, by the method of Seidell is to be the standard for the antineuritic vitamin B. It is made by extracting rice polishings with dilute sulphuric acid and treating with fullers' earth. The earth with the vitamin adsorbed forms the standard substance. As far as is known, loss of antineuritic vitamin does not occur even when the dry preparation is kept at room temperature for some years. But moisture must be avoided or bacterial decomposition will take place. The material has the disadvantage of being a complex substance and probably contains other B vitamins. The unit is the antineuritic value of 10 mg. of the adsorption product.

VITAMIN C

A suitable standard of reference for vitamin C appears to exist ready made. It has been found that the juice of oranges and lemons varies little in vitamin C potency from year to year. The unit is the activity of 0.1 cc. of fresh juice of the lemon, Citrus limonum.

METHODS OF BIOLOGIC ASSAY

The merits of the different methods of biologic assay were not discussed at any length. The substance under examination and the standard preparation are tested simultaneously by the same method. The test substance should therefore show the same value in terms of the standard, whatever the technic. Thus, for vitamin D tests the conference decided that the "line" test, roentgen examination and determination of bone ash are all equally reliable.

The Evils of Medical Socialism

The scheme of the British Medical Association for a national medical service that would provide treatment for every class and cover the whole field of preventive and curative medicine was described in a previous letter (The Journal, May 17, 1930, p. 1612). After the crushing defeat of the socialists in the general election and with the stringent economy and overtaxation rendered necessary by their prodigal expenditure, such extension of the medical socialism of the insurance act is not to be feared for the present. In an address to the Windsor and District Medical Society, Sir Ernst Graham-Little, dermatologist and member of parliament for London University, criticized the association's scheme. He said that it would perpetuate and indeed aggravate the radical defect of the present insurance act—the restriction of insurance benefits to what was described in the act as "general practitioner treatment." This was one of the principal reasons for the dissatisfaction of the insured with the service supplied. Sir Arthur Newsholme, formerly principal medical officer to the local government board, obviously no unfriendly critic, described that service in a recent address as "representing in many ways an obsolete ideal of medicine." The drastic reduction of the capitation fee of panel physicians has been described in previous letters. The medical profession had been able to meet this cut with something like equanimity, because panel practice was not the sole resource of the majority of practitioners. "The problem of the outpatient at the voluntary hospitals" had arisen. Partly as the result of dissatisfaction of insured persons with the national insurance service, the number of outpatients at all the hospitals throughout the country has risen continuously during the last decade, and the remarkable position has come about that, notwithstanding a health insurance involving compulsory contributions and therefore no expense on receiving treatment, which was confidently expected to deplete our outpatient departments, the attendance has risen continuously since 1920 until it now exceeds the figure before the act came into operation. The suggestion that the hospitals should receive only such patients as were countenanced by physicians acting under the orders of the British Medical Association was a complete misapprehension of the situation. As the expenses of the hospitals were met by the general public, such an assumption of authority would not recommend itself to those who supported the institutions, who were now largely the working classes themselves.

London's Biennial Epidemics of Measles

It is curious that epidemics of measles occur regularly in London at intervals of two years. They begin in the late autumn, reach a maximum in March, and take some six or seven months to complete the circle of London. Sporadic cases occur the interepidemic periods, especially in centers of overcrowdg, but not until sufficient susceptible material has accumulated are the conditions ripe for starting a new epidemic. The last one occurred in the autumn and winter of 1929-1930 and the next is therefore due this autumn. In each epidemic, no fewer than 50,000 children are attacked. As this number is too great for hospital treatment, the public health committee of the London county council encourages home nursing when it can be carried out under favorable conditions. Indeed, it is difficult to say at the moment whether the council will have at its disposal sufficient accommodation in its fever hospitals to cope with the cases that may require hospital treatment. If not, it will be necessary to call on the general hospitals for assistance during the period of greatest pressure, February to April, 1932. The committee points out that in spite of such propaganda in recent years the belief still prevails that the disease can be lightly regarded and can be treated without medical advice or skilled nursing. The fact is that in the past four years, measles has caused eight times as many deaths as scarlet fever and one and one-half times as many as diphtheria. The London county council and the metropolitan borough councils are taking every precaution to cope with the imminent epidemic. The following advice has been issued: 1. Every effort should be made to postpone the contraction of the disease until after the third or preferably the fifth year, for the younger the child the greater the danger of serious complications. 2. Adequate medical, nursing and hygienic care are the most important means for preventing the complications and a fatal issue. 3. The disease is particularly fatal among children undernourished and living under unfavorable conditions. Special methods of control must be applied to prevent or ameliorate the disease in such children. The *Times* suggests that the best way to prevent infection of young children is to exclude those under the age of 5 years from Christmas or other parties, except perhaps family parties. Infection usually has its headquarters in the school. When school children come in association with infants, for example at Christmas time, the infection epidemic gathers force. If young children must go to parties they should associate only with those of the same age, under the school age.

PARIS

(From Our Regular Correspondent)

Oct. 28, 1931.

The French Congress of Hygiene

Among the topics on the program of the eighteenth French Congress of Hygiene this year was the protection of civil populations, in time of war, against war gases. Sieur, *médecin inspecteur général,* did not hesitate to say that, in spite of solemn agreements entered into by the nations of the world, it was likely that they would have recourse to the use of these gases, in case of war, without the least scruples. In the countries bordering on France, there are no doubt large supplies of gas shells—likewise in Russia. The accident that occurred in a Hamburg plant, a few years ago, costing the lives of some thirty persons, through the escape of phosphine gas, is evidence of the fact. Furthermore, all the chemical manufacturing plants that produce nitrogen compounds to be used as fertilizers can be equipped within a few hours for the intensive production of war gases. Professor Messerli of Lausanne projected some interesting illustrations, taken from German and Russian magazines, showing the drills to which the civil populations are periodically subjected in order to become accustomed to the wearing of masks for protection against war gases. Colonel Laure, representing le maréchal Pétain, explained a system of preventive measures to be adopted in case of a gas attack: rapid evacuation of the population, creation of shelters supplied with properly filtered air, masks of various kinds, special hospitals for the treatment of gassed persons, and the like. Mr. Marcelle presented a new style of mask. Professor Parisot of Nancy gave an account of a gas mask drill that was recently held in that city for the purpose of accustoming the population to the wearing of a gas mask. He recommended that police officers, firemen and hospital nurses be given, in time of peace, special instruction that would enable them to render intelligent aid to victims. There were also long discussions on the rôle of hygienists in connection with the new law pertaining to social insurance. Mr. Dequidt, *inspecteur général,* Professor Parisot, Dr. Boulangier, Dr. Pigot and Mlle. Chaptal presented communications dealing with the topic. Dr. Cuvier spoke on the collective organization of donors for blood transfusion. Dr. Grasset discussed the question of antityphoid serotherapy. Carrieu and Pappas spoke on the rôle of mollusks and other shell fish in the transmission of typhoid. The congress was prolonged in order to afford the conventionists an opportunity to inspect carefully the pavilions of the Colonial Exposition, where were displayed many documents pertaining to colonial hygiene and to the crusade against tropical diseases.

The French Gynecologic Congress

The congress of the Association des gynécologues et obstétriciens de langue française met recently at Bordeaux under the chairmanship of Prof. Jean-Louis Faure. In his inaugural address, Professor Faure urged his colleagues to seek to simplify the technic of important gynecologic operations and to improve the instrumentation so as to reduce to a minimum the number of aids and assistants that a surgeon requires. Mr. Cotte of Lyons presented a paper on radiologic diagnosis in gynecology, the first question on the program, considering in turn pneumoperitoneum and the injection of iodized oil into the uterus and the tubes. He considers the last-mentioned method valuable for the testing of tubal patency and the diagnosis of sterility in women. Inflammatory accidents of the tubes constitute 0.43 per cent. Injections into a hemorrhagic uterus should be avoided for fear of embolism. The second paper was that of Mr. Henrotay of Antwerp, who spoke on obstetric roentgen diagnosis—roentgen pelvimetry, which is difficult and does not permit the measurement of the fetal head; early diagnosis of pregnancy, which is possible only with the beginning of the fifth month but which is of great value from the medicolegal point of view; diagnosis as between pregnancy and tumor, which is often useful; diagnosis of a twin pregnancy, only with the beginning of the sixth month; diagnosis of the death of the fetus through demonstration of overlapping of the bones of the fetal cranium; and ectopic pregnancy associated with the injection of iodized oil. In the discussion that followed, Mr. Douay of Paris, who has made 709 explorations with iodized oil and 576 insufflations, declared that the results are essentially the same with the two methods. Each gave him from 8 to 10 per cent of pregnancies during the year that followed the examination. The only danger is infection in case of hydrosalpinx. A third paper was furnished by Hamant of Nancy and Koenig of Geneva, on the social means of discovering cancer of the uterus. In the treatment of this form of cancer great progress has been made. Unfortunately, in 50 per cent of the cases the patients do not consult a physician until the lesions are too far advanced. Ordinarily, it may be said that uterine cancer is incurable after the lapse of from five to six months after the appearance of its first signs. The essayists recommended that physicians familiarize themselves with the early signs of uterine cancer and advised every woman more than 30 years of age to be examined at least every year—better would be every six months. Especially women who have presented, since confinement, lacerations of the cervix, and those who have had numerous pregnancies, should be examined periodically, for which purpose convenient anticancer centers should be created and the attention of the public called to them.

A fourth paper, on "Late Hemorrhages of the Postpartum Period," consisted of two parts, one part being presented by Anderodias and Péry of Bordeaux, and the other by Professor Couvelaire of Paris. Grave hemorrhages are caused chiefly by an infection. Others yield to ergotine, hot intra-uterine injections and uterine massage. Couvelaire considers curettage dangerous or ineffective. He prefers medical treatment, local or general vaccines, and, if need be, hysterectomy, which results, it is true, in 50 per cent of mortality; but it is resorted to only in cases that would otherwise result fatally. Mr. Keller of Strasbourg recommends, as a prophylactic measure, careful examination of the uterine cavity after every confinement. Numerous unofficial communications were then presented—on the examination of the urine for the presence of the hypophyseal hormone as a method for early diagnosis of pregnancy; on the use of the B C G vaccine in normal new-born children, on the use of diathermy in gynecology, and others.

The French Society of Gynecology

Every year the Société française de gynécologie holds a plenary session at which many important questions are discussed, with the aid of foreign scientists. The first paper was presented by Mr. Ulrich on "The Chemism of the Vagina and Its Physiologic Significance." He pointed out that, in the whole economy, only the stomach and the vagina supply acid secretions, the vaginal secretion containing lactic acid. He then took up the dosimetric methods by which the vaginal acidity can be quantitatively determined; discussed the rôle that such acidity plays with respect to the vaginal microbic flora, and the origin and behavior of vaginal acidity during the life of the woman. He gave then one theory as to the genesis of this acidity and pointed out in closing that temporary or lasting constitutional hyperacidity of the vagina may be the cause of sterility.

In another paper, Mr. C. O. Guillaumin considered the best chemical conditions for the development of various germs in the vaginal secretions. In a third paper, Mr. Martin of Angers discussed the indications for various surgical interventions in the treatment of nontuberculous chronic salpingitis. He stated that gynecologists had become, in this field, much less inclined to operate than formerly—since cures had begun to be effected by diathermy, and radioscopic examination of the tubes into which iodized oil has been injected has made possible the determination of their patency. Among the unofficial communications presented, mention may be made of those that favor the return to vaginal hysterectomy (Violet); the criterion of recovery from gonorrhea in the woman (Bender); the treatment of colibacillary manifestations in the woman (Colanéri), and phlebitis and periphlebitis of uterine origin (Maurice Fabre).

The Thirty-First French Congress of Urology

The thirty-first Congrès français d'urologie was held, October 6, at the Faculté de médecine, under the chairmanship of Dr. Gauthier of Lyons. A single topic was on the program: "Postoperative Acidoses." Dr. Chabanier, in collaboration with Dr. Lobo-Onell of Santiago, Chile, presented a comprehensive introductory paper. After general statements on the notions of acidosis, the paper took up keto-acidosis in persons with true diabetes, keto-acidosis in persons without diabetes, and postoperative acidoses without ketosis. Christol of Montpellier and Chauvin of Marseilles presented their individual opinions on various questions. A large number of communications on various questions of urology were discussed at length.

Session of the Academy Devoted to Colonial Medicine

October 13, the regular session of the Academy of Medicine was devoted entirely to colonial medicine, in connection with the Colonial Exposition, which will soon close. The governors of the various colonies, present in Paris at the time, were on the platform in full dress; also several foreign scientists:

Sanarelli of Rome, Cantacuzène of Bucharest, Ricardo Jorge of Rio de Janeiro, Henrijean of Liége, and Madsen of Copenhagen. Professor Marchoux of the Institut Pasteur delivered an address on the present status of the question of malaria, with the indications for new drugs proposed to take the place of quinine, plasmochin and Fourneau 710. Mr. Mathis discussed the question of spirochetoses occurring in French West Africa. Mr. Mesnil spoke on trypanosomiasis, or the sleeping sickness. Mr. Dinguizli Bachir of Tunisia gave an account of the progress in that country in health work since the creation of a bureau of social hygiene.

BERLIN

(From Our Regular Correspondent)

Oct. 19, 1931.

International Congress of Women Physicians

The International League of Women Physicians, which draws its membership from twenty-six countries, assumed the task of studying some sociohygienic problems that women physicians regard as their special field of investigation. The International Congress of Women Physicians, held in Vienna under the chairmanship of the French woman physician Dr. Thuillier-Landry, attracted 200 participants. One of the topics was "The Work of the Woman Physician in Tropical Countries." Forty woman physicians from India, Persia, China, Japan, Egypt, Palestine and Africa submitted replies to the questionnaires sent out. The papers of Dr. Balfour of India and Dr. Garnier of Algeria gave an insight into the terrible hygienic conditions under which women live in tropical countries. As women physicians inspire great confidence almost everywhere, so long as they do not antagonize too sharply religious customs, a wide field of action is opened to them, particularly through the creation of consultation centers for mothers, maternity hospitals, eye policlinics, training of nurses and education of the people in hygiene.

LAWS FOR THE PROTECTION OF WORKING WOMEN

The papers of the second day, on "Laws for the Protection of Working Women," presented by Dr. Sorrentini of Rome, Dr. Bang of Oslo and Dr. Adler-Herzmark of Vienna, led to a lively discussion. The Scandinavian physicians and a portion of the English and American physicians, who support the "open-door" movement, are fighting, above all things, for the principle of equal rights for women, and therefore reject special protection through legislation. They contend that women with, for example, better pay for night work should look out for the preservation of their health themselves. The need of protecting pregnant women is not denied; but the period of protection should be regarded as a period of sickness and the sick benefits should be paid by the sick benefit associations. The better standard of living of the Nordic peoples has doubtless led to this attitude. According to the German conception, the protection of mothers is one of the chief forms of protection for working women, since without such protection they become worn out early in life through the double burden of the household and the work in a factory and are liable to become permanent invalids, and furthermore because certain industrial poisons, such as lead and benzene, injure the child in utero. Two German industrial women physicians (Krüger of Dresden and Rosenthal-Deussen of Magdeburg) called attention to the fact that the time is past when, for the sake of the principle of equal rights, the physiologic peculiarities of woman are denied. In view of the constraining force exerted by present economic conditions, it is the duty of women physicians to prevent selfish interests from exploiting the health and strength of women.

Since the greater percentage of working women are married, they take care of the home and the children. It is impossible for them to secure adequate rest. How is the pregnant textile worker to protect herself when the inexorable movements of the loom prevent her from resting between the tiresome bending and lifting? How is she to protect herself when constantly new machines and new poisons make their appearance in the industries? In view of the modest demands that women make on industry, there is danger that labor forces may be drawn into those countries that are most backward from a sociopolitical and sanitary point of view.

In closing, a resolution was adopted demanding the creation of uniform, international laws for the protection of labor; furthermore, supervision of industrial plants by specially trained industrial physicians, compulsory instruction of students in industrial hygiene and occupational diseases, far-reaching control of home work as it concerns men and women, and the carrying out of the principle of "Equal pay for equal work for men and women."

Retrenchment in Child Welfare Societies

The Deutsche Gesellschaft für Kinderheilkunde, filled with anxiety concerning the dire effects of threatened retrenchments in children's aid made necessary by the stringent economic conditions, issued at its recent meeting the following proclamation:

> With great anxiety German pediatricians look forward to the future of the German people. Already they observe in Germany and Austria conditions similar to those seen during the worst years of the war and postwar period: general debilitation, reduced resistance to disease, and increase of tuberculosis. As a result of economic distress, the birth rate has declined considerably. But—worse still—the small number of children born are seriously threatened in their development. And under these conditions, the organizations that have been slowly and laboriously built up to supply aid to sick children are to retrench? Are also hospitals to be closed; are sick children to be dismissed from hospitals before they are well, and are welfare centers to be abolished? In the face of such threatened action, the Deutsche Gesellschaft für Kinderheilkunde cannot remain silent. It warns against the great dangers that threaten the life and health of our children, and protests most decidedly against any ill planned restrictions on the aid to be given children in need. To be sure, retrenchments will be necessary; but they must not be introduced at the expense of our children, in whom lies the hope of the German people.

Suicide and Economic Conditions

It is recognized today that a large proportion of the cases of suicide are due to mental disease or to abnormal predispositions. In many countries there has been an increase of suicide since the end of the war, especially in the cities. Recent statistics represent Switzerland as having the highest percentage of suicide: 2.6 per 10,000 inhabitants; Germany with 2.5 suicides per 10,000 of population; Japan, 2.1; France, 1.9; United States, 1.6; England, 1.2, whereas in Italy, the Netherlands, Norway and Spain there is not 1 suicide per 10,000 of population. The percentage of men committing suicide has always been greater than that of women; but of late the percentage of women has been increasing, which may be due to the fact that women are more frequently engaged in occupational activities. Aside from the mental disposition of the population, no doubt the economic situation plays an important part, as Dr. Hans Dornedden, with the federal bureau of health, has emphasized in a recent number of the *Deutsche medizinische Wochenschrift.* The influence of the density of the population manifests itself in the fact that the suicide rate in the large cities is higher than elsewhere. Of especial significance was the trend of events after the war. In 1918, suicide among males of the wage-earning age groups dropped to half that of the last prewar year. The year of inflation (1923) brought a great many suicides among persons in the seventies, who through the depreciation of money values lost their means of subsistence. Later, however, suicide among aged persons became less than before the war, because the public welfare departments rendered aid to the aged. During the years 1926 and 1929, the frequency of suicide among men and women of wage-earning age was augmented because of the increased difficulty of securing employment. Thus, the statistics on suicide are, in a sense, a barometer of the economic conditions. But the typical curve of the suicide months, which reaches its apex in the spring and drops, toward the end of the year, to about two thirds of the maximum, is yet to be explained. While it is true that the suicide rate shows an increase as employment becomes more difficult to secure, there are other factors that are more stable than the fluctuations of economic life. For example, after the economic crisis of 1876-1885 it was observed that the high suicide rate did not decline when conditions improved, doubtless because the habit of seeking escape in this manner from the struggles of existence had first to be overcome. On the other hand, the lack of employment in 1931, even at its worst, has not affected the mentality of the people in such a manner that suicide has shown any great increase. It appears rather that the great difficulties have aroused the courage of the people and fitted them to struggle with unfavorable conditions. In this connection, it is observable that misfortunes and distress that rest more or less uniformly on all the people do not commonly bring about an increase of suicide. Individuals feel, under such circumstances, that they are part of an inseparable whole and are more inclined to resist the temptation to end their lives.

CAPE TOWN

(From Our Regular Correspondent)

Oct. 14, 1931.

The Annual Medical Congress

The twenty-fifth annual medical congress, the fourth held under the auspices of the Medical Association of South Africa, was opened at Johannesburg, September 14, and was attended by about 400 physicians from all parts of the Union and by delegates from Rhodesia, Kenya and the Congo. These annual medical meetings, first started in 1893 and now popular features of our medical life, are less scientific gatherings than social reunions of which advantage is taken by all medical men who can afford to take a holiday. Owing to the vast distances to be traversed and the difficulties of railway traveling the attendance is not usually representative, but this year's meeting may be said to have been fully representative both of the profession and of the medical association, in that 25 per cent of the association members turned up. As the association represents nearly 88 per cent of all practicing physicians in South Africa, this proportion is highly satisfactory. Translated into relative American figures, it would mean that some 40,000 medical men attended such a meeting in the United States. This success is largely due to the lure that Johannesburg has. It is the fourth time that the congress assembled there, the first meeting having been in the troublous time immediately succeeding the year of the Jameson raid, and the last in 1922. The first Johannesburg meeting is still talked of with enthusiasm by old members, for those were the days when it was still a city of adventure and romance. Today it is more sober, but none the less conscious that it is the economic and industrial hub round which the rest of South Africa turns. It does things on the grand scale, and the congress was no exception, for the program was so full that most of the members were utterly fatigued before the middle of the week was reached.

THE PRESIDENTIAL ADDRESS

The president of the congress was Dr. Francis Napier, one of the oldest and most respected specialists in the country, who in the past has done excellent service as a legislator. His subject for the presidential address was a highly controversial theme, "A State Medical Service," and opinions differ widely on the desirability of saying what he had the courage to say. He pointed out that there was a tendency to become too individualistic in the profession and that such rampant individualism constituted a danger to the public. His frank opinions have given rise to considerable discussion and some resentment. Many feel that some such pronouncement should be made in the interests of all concerned. We are now training our own medical men, and it is possible that we are trying far too much to train them in the direction of making immature specialists out of them instead of endeavoring to shape them into good general practitioners. In isolated rural areas the general practitioner must undertake emergency operative work when he is faced with it, but unfortunately many general practitioners do major operations for which they have neither the experience nor the training. The adumbration of a state medical service is hardly a fit subject for such an oration, but the choice may be excused because the profession has been much intrigued by the various proposals made to give adequate medical services to the rural and native areas. In a former letter I mentioned the memorandum which had been drawn up on the subject by the federal council of the association. This has now, with some slight modifications, been presented to the minister of public health, who is already dealing with the program of activities recommended by Professor Swellengrebel in his report on malaria. The association, briefly, supports an extension of the existing system of district surgeons, a system that took root in the Cape Province but has never been popular in the other provinces. Dr. Napier pleads in his presidential address for the institution of a state medical service, modeled apparently on the system now existing in Basutoland. Both the government and the lay public are keenly interested in the subject. With the proposal to do away with the present provincial system of political control of education, public health and roads there is a desire on the part of the public to have some concrete suggestions for improving the present position as regards medical aid. Possibly some measure of devolution will be favored, and something similar to the Canadian system of rural medical officers may come up for consideration. Conditions in some rural districts are so bad that there is practically no private practice, and the practitioners live on what they obtain from the state. In such areas there is already, for all practical purposes, a state medical service, although it exists under conditions which are irksome to the practitioner and of little benefit to the public. Dr. Napier's frank discussion of the pros and cons will at least enable the public to see that the medical profession is not afraid to contemplate the possibility of a state medical service, provided the conditions of service are such as to satisfy both sides.

SCIENTIFIC PAPERS

There was no paper of outstanding importance read at the congress. The committee rightly tries to make these meetings attractive and instructive to the general practitioner, and ultrascientific papers that need for their discussion intimate specialized knowledge are discouraged. Many papers of general interest were read. Perhaps the most important discussion was that initiated by Dr. Lance Impey of Cape Town, on "Medical Attendance in Pregnancy and the Puerperium." In the discussion the need for specialist attention, for intelligent examination of the pregnant mother, and for equally skilled antenatal treatment was stressed. Dr. Marchand gave an interesting paper on "Obstetrics Among South African Natives." The initial paper, on constipation, introduced a brisk discussion in which various speakers emphasized the fact that constipation was as common among natives as among whites, and that the evils due to intestinal stasis were probably due more to mechanical than to toxic causes. Before the section on medicine the Phthisis Bureau of Johannesburg contributed a paper on the number of tuberculosis and silicosis cases, explaining the difficulties of the definite diagnosis of pulmonary tuberculosis with x-rays. In the section on surgery the opening session was devoted to a discussion on appendicitis, but the paper that roused the greatest interest was that of Dr. Lee Macgregor on the surgery of the sympathetic nervous system. The public health section had one paper of outstanding interest, Dr. Sampson's admirable discussion of the etiology of blackwater fever and its relation to malaria. Considerable interest also was aroused by a preliminary report by Dr. Scroggie, medical officer of health for Port Elizabeth, on a new type of fever with some resemblance to typhus fever, observed in his area; the probability is that the disease is due to a Rickettsia body, but further bacteriologic and clinical research is required before it can be accepted as a clinical entity. The public health section held a combined meeting with the psychiatric section in which the subject of the sterilization of the unfit was discussed. The introducer, Dr. Dunston, commissioner for mentally disordered persons in the Union, made a strong plea for the compulsory sterilization of mental defectives, but an equally strong case against such sterilization was made out by his opponents. The public is interested in this subject, largely owing to the provocative statements that are made in the lay press about the high percentage of mentally defective juveniles in the population. There has been no authoritative survey of mental defectiveness in the Union and the percentages are more or less guesswork, for many of the statistical data are derived from the results of intelligence tests. The work in the other sections presented nothing of particular interest.

The Cancer Conference

A conference on cancer, convened by the administrator of the Transvaal Province at the instance of the Johannesburg Hospital Board, was held immediately after the congress and was well attended, although interest waned after the first day. The conference discussed the advisability of founding a national society for fighting cancer and decided on its establishment. The society is to be affiliated with the Imperial Cancer Research, and its work will be mainly to educate the public. Originally it was intended that the conference should also authorize the establishment of a cancer research institute, but the idea has been deprecated, as it is argued that cancer is not a disease of immediate economic importance in South Africa and that, in comparison with malaria, tuberculosis and rheumatic fever, its urgency is of less importance. The conference took no resolution on this subject or on the matter of the purchase of a radium bomb for distant treatment. The enthusiasm of the conveners had lessened by the time the conference met, and the only practical result of the meeting was the establishment of a South African anticancer society, which will probably have as long and as uneventful a life as the antimalaria societies in the past. The fact is that while the public has a reasonably active interest in cancer, it feels that there are other diseases of far greater importance in this country, which stand in need of investigation, and that we already have an excellent research institute at Johannesburg in the South Africa Institute for Medical Research, which is financed partly by the mining industry and partly by the government and is under the able directorship of Sir Spencer Lister.

Research on Malaria

The institute has just published a report by Professor Swellengrebel and his co-workers on the incidence of malaria in the Union. Professor Swellengrebel's report to the government was written in simple, popular language, and has resulted in the government taking action. Most of the recommendations which he suggested will be adopted. A malaria research institute, in charge of Dr. Annecke, is being established in the low veld, and adequate provision is being made for the treatment of malaria cases in rural areas. Professor Swellengrebel in a carefully written scientific report discussed the question of the relative immunity or toleration possessed by the aboriginal native living in malarious areas. He and his co-workers have carefully examined both the adult and the juvenile population in some of the locations situated in the most fiercely endemic districts, and have come to the conclusion that natives in such areas possess a real tolerance which is of industrial and economic importance. The report is one of the most interesting papers on malaria that have been published on this side.

JAPAN

(From Our Regular Correspondent)

Sept. 26, 1931.

Personals

Prof. Dr. Yokota, who retired as chief of hygiene in the medical department of the Tokyo Imperial University, was succeeded by Dr. Tamiya, professor in the university and a member of the Government Institute for the Study of Infectious Diseases. He had a scholarship in the Rockefeller Institute for the years 1914-1916.

Dr. Sato left Yokohama for Europe by way of America, July 16. He is a member of the lower house of the imperial diet, elected from Fukuoka prefecture, and was to attend the international conference of national representatives in Budapest in October.

Dr. Professor Kitajima, chief of the Keio Medical College and president of the Japan Physical Association, has been appointed medical superintendent of the Saiseikai Charity Foundation, succeeding the late Baron Dr. Kitasato.

Dr. Tomura, who had been chief of the health bureau of Tokyo, resigned from his post and was succeeded by Mr. Ishibashi, secretary of the bureau.

Owing to the death of Baron D. Kitasato, founder and director of the Kitasato Institute, Dr. Kitashima, former vice director, was unanimously elected director, and Dr. S. Hata was elected vice director.

Dr. Rajchman of the League of Nations arrived in Tokyo, September 10, on his way to inspect health conditions in China.

Dr. Takayama, professor in the Kyushu Imperial University, who resigned, has been appointed an emeritus professor of the university.

Dr. Miyajima, permanent commissioner of the narcotic section of the League of Nations, will be in Tokyo in the middle of November after visiting America on his way home.

Professor Gann of the Rockefeller Foundation, who recently arrived in Tokyo, visited the health bureau of the home ministry to talk over the proposed establishment of the health center and school of public health and hygiene in this country. August 6, he visited the government dietetic institute and other places, and attended the dinner party given in his honor by Mr. Adachi, home minister, in the evening.

Dr. Johnson of the University of Pittsburgh School of Medicine, who came to this country as a representative of the American Eugenic Society, was welcomed by the Japan Physical Hygienic Association at the Hitotsubashi Club at Kanda, Tokyo, July 25. At this meeting he gave a lecture on the practice of sterilizing feebleminded persons in America. His schedule for the two months' stay in this country was arranged and the home ministry gave an order that he could lecture without inconvenience at the places where he would go.

Sanatoriums and Asylums

The Yamaguchi branch of the Japan Red Cross Society is going to establish a new sanatorium at the town of Onoda. It will contain forty beds when completed.

The Wakamatsu Sanatorium, which is in Kanazawa City and has sixty beds at present, is also going to enlarge the capacity by twenty beds.

The Satojima Leprosy Asylum, which has accommodations for 550 patients at present, is going to enlarge the capacity by 450 additional beds.

Infectious Diseases in Dormitories

The educational ministry has conducted an investigation of the number of cases of infectious diseases that broke out among the students in the dormitories in this country. The cases of dysentery were the largest in number, there being eighty-seven; next came the eighty-two cases of typhoid; then twenty-two cases of paratyphoid fever, then five cases of diphtheria, and lastly two cases of scarlet fever. The number of cases for five years and the deaths are as follows:

Year	Number of Dormitories	Number of Cases	Deaths
1927	110	235	7
1928	120	254	7
1929	81	151	8
1930	94	187	8
1931	113	208	8

New Regulations for Narcotic Drugs in Taiwan

The government of Taiwan (Formosa) has issued new regulations for opium and other narcotic drugs this year. Opium is not allowed to be handled except by licensed pharmacists and druggists. A person who is suspected of being an opium eater shall be detained in an opium eaters' hospital for observation. In using any preparations of narcotic drugs, physicians must obtain licenses from the local governor whenever in need of them for their patients.

Epidemic of "Dengue Fever"

An epidemic of "dengue fever" which broke out in the Loochoo Islands last July was reported by the local government to the effect that there were 13,969 cases, 136 of which terminated fatally, between July 13 and 19. The authorities concerned on the islands did their best in killing the mosquitoes. The symptoms are reported to be like those of influenza at first; then come typical states of fever accompanied by eruption. Some patients improved after two or three days of pain in the joints, and eruption; others continued to suffer for a week or more.

Cholera

Dr. Katsumata, health officer of the department of the interior, returning from Shanghai in August reported the health conditions there to be very good because of the inoculations against cholera made among the inhabitants. August 24, however, two cases were found on board the British steamer which had touched at Shanghai on the way to Kobe. The patients had been infected in Shanghai, and the next day another case was found. September 7, a case was reported at Fukuoka, Kyushu, in a Chinese who had just arrived from his native country.

Marriages

James C. Owings, Baltimore, to Miss Constance Macgill Carey of Riderwood, Md., at Ruxton, November 14.

Edwin Foster Gouldman, Colonial Beach, Va., to Miss Margaret Reid of Washington, D. C., October 13.

George Preston Nowlin, Charlotte, N. C., to Miss Mary Ann Jones of Lynchburg, Va., October 10.

James Winston Watts, II, of Chicago, to Miss Julia Meem Harrison of Lynchburg, Va., in October.

Clabe Webster Lynn to Miss Grace Lunsford Friend, both of Petersburg, Va., October 17.

James Bannister Stone to Miss Janet Watkins, both of Richmond, Va., November 3.

Jacob Goldberg to Miss Rose D'Vorkin, both of Long Branch, N. J., November 5.

DeWitt C. Dever to Miss Dorothy L. Fraley, both of Seattle, October 29.

Deaths

Louis D. Brose ⊕ Evansville, Ind.; University of Pennsylvania School of Medicine, Philadelphia, 1881; member of the American Academy of Ophthalmology and Oto-Laryngology and the American College of Surgeons; past president of the Vanderburgh County Medical Society; delegate to the Pan-American Medical Congress in Washington, D. C., in 1893, the International Medical Congress in Berlin in 1900 and the International Otological Congress in Boston in 1912; demonstrator and professor of anatomy, Evansville Medical College, until it dissolved in 1885; for many years oculist and aurist to St. Mary's Hospital; aged 72; died, November 15, of hypostatic pneumonia.

Norton Luther Wilson ⊕ Elizabeth, N. J.; Bellevue Hospital Medical College, New York, 1884; past president of the Medical Society of New Jersey and the Union County Medical Society; formerly member of the board of health; member of the American College of Surgeons; senior ophthalmologist and otolaryngologist to the Elizabeth General Hospital and consultant to St. Elizabeth's and Alexian Brothers' hospitals; formerly member of the board of managers of the Bonnie Burn Sanatorium, Scotch Plains; aged 70; died, November 13, of heart disease.

Archibald Mercer, Newark, N. J.; College of Physicians and Surgeons in the City of New York, 1871; member, past president and for thirty years treasurer of the Medical Society of New Jersey; secretary, 1878-1906, and president in 1906, Essex County Medical Society; police surgeon, 1881-1883; medical superintendent, visiting surgeon and on the staff of the St. Barnabas Hospital, 1880-1921; surgeon to the New Jersey Home for Disabled Soldiers, 1891-1897; aged 82; died, November 3, of chronic interstitial nephritis and cerebral hemorrhage.

Frederick Asser Asserson ⊕ Medical Inspector, Commander, U. S. Navy, retired, Newport, R. I.; University of Virginia Department of Medicine, Charlottesville, 1899; member of the American College of Surgeons and the New England Surgical Society; entered the Navy in 1901 and retired in 1920 for incapacity resulting from an incident of service; aged 52; on the staff of the Newport Hospital, where he died suddenly, November 6, of heart disease.

Carter Slocum Fleming, Fairmont, W. Va.; College of Physicians and Surgeons, Baltimore, 1914; member of the West Virginia State Medical Society, and the American College of Surgeons; past president of the Marion County Medical Society; gynecologist and obstetrician to the Cook Hospital; aged 40; died, in November, at the Walter Reed General Hospital, Washington, D. C., of a self-inflicted bullet wound.

Lemuel Fox Woodward, Worcester, Mass.; Harvard University Medical School, Boston, 1882; member of the Massachusetts Medical Society, and the American College of Surgeons; consulting surgeon to the Worcester City and Memorial hospitals, Worcester, and the Hospital Cottages for Children, Baldwinsville; aged 74; died, November 12, of arteriosclerosis and cerebral hemorrhage.

Lawrence Evans Chapman, Galveston, Texas; University of Texas School of Medicine, Galveston, 1915; member of the State Medical Association of Texas, and the American College of Physicians; associate professor of clinical medicine at his alma mater; on the staff of the John Sealy Hospital; aged 44; died suddenly, October 21, of coronary occlusion.

Edward Dunaway Allgaier ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1908; formerly instructor in clinical pediatrics, and clinical otolaryngology, University of Cincinnati College of Medicine; on the staff of St. Francis Hospital; aged 48; died, November 6, in the Deaconess Hospital, of injuries received in an automobile accident.

Robert James Talbot ⊕ Niagara Falls, N. Y.; Baltimore Medical College, 1909; member of the American College of Surgeons; physician to the Niagara University; formerly health officer of Niagara Falls; on the staffs of St. Mary's and Niagara Falls Memorial hospitals; aged 49; died, October 30, of tuberculosis of the throat.

Marvin R. Stone, Parkersburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1908; member of the West Virginia State Medical Association; past president of the staff of the City Hospital and a member of the staff of St. Joseph's Hospital; aged 53; died, September 4, of coronary occlusion.

Newton Whitney Wear, Bellingham, Wash.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; member of the Washington State Medical Association; county coroner; aged 52; on the staff of St. Joseph's Hospital, where he died, September 8, of leukemia.

Edmund Farnham Curry ⊕ Fall River, Mass.; Harvard University Medical School, Boston, 1896; member of the New England Pediatric Society; formerly on the staff of the Fall River General Hospital; aged 58; died suddenly, October 29, in the Union Hospital, of coronary occlusion.

Leonard Reu, Buffalo; University of Buffalo School of Medicine, 1904; member of the Medical Society of the State of New York, and the American Roentgen Ray Society; aged 52; died, November 2, of miliary and pulmonary tuberculosis, chronic endocarditis and mitral insufficiency.

James Patton Taylor, Wartrace, Tenn.; Vanderbilt University School of Medicine, Nashville, 1896; member of the Tennessee State Medical Association; aged 63; was instantly killed, November 1, when the automobile in which he was driving was struck by a train.

Thomas Carr Avary, Portland, Ore.; Southern Medical College, Atlanta, 1889; member of the Oregon State Medical Society; for many years health officer of Skamania County, Wash.; aged 72; died, October 25, in the Good Samaritan Hospital, of lobar pneumonia.

Marcus F. Squier, Harrison, N. J.; College of Physicians and Surgeons in the City of New York, 1872; member of the Medical Society of New Jersey; formerly member of the board of health; aged 80; died, November 1, of angina pectoris and myocarditis.

Harlin H. Smith, Calico Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1906; member of the Arkansas Medical Society; aged 50; died, October 14, in the Baptist State Hospital, Little Rock, of cerebral hemorrhage.

Manley Arphew Siske, Kings Park, N. Y.; University of Virginia Department of Medicine, Charlottesville, 1927; senior assistant physician on the medical staff of the Kings Park State Hospital; aged 34; was accidentally drowned, October 20.

Joseph Amidee Charest, Nashua, N. H.; Tufts College Medical School, Boston, 1896; member of the New Hampshire Medical Society; on the staffs of St. Joseph's Hospital and the Nashua Memorial Hospital; aged 64; died, October 20.

Harold Lowell Reinhard ⊕ Portsmouth, Ohio; Ohio State University College of Medicine, Columbus, 1927; aged 32; on the staffs of the Mercy Hospital and the Portsmouth General Hospital, where he died, November 3, of spinal meningitis.

William Baird Henderson ⊕ Philipsburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1886; member of the American College of Surgeons; chief of the staff of the State Hospital; aged 71; died, October 30.

Henry Hamilton Taylor, San Saba, Texas; Memphis (Tenn.) Hospital Medical College, 1902; member of the State Medical Association of Texas; president of the school board; county health officer; aged 51; died, October 11.

Thomas Brinsley Foley, Boston; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1903; member of the Massachusetts Medical Society; aged 52; died, November 12, of carcinoma of the rectum and bladder.

William Martin Bradley, Mayesville, S. C.; Baltimore University School of Medicine, 1900; member of the South Carolina Medical Association; aged 57; died, October 28, of myocarditis following influenza and pleurisy.

Emma J. Batchelor, Cincinnati; Presbyterian Hospital and Woman's Medical College, Cincinnati, 1894; member of the Ohio State Medical Association; aged 77; died, November 4, of coronary embolism and arteriosclerosis.

Frederick John Mitchell, St. Paul; Hahnemann Medical College and Hospital, Chicago, 1903; Northwestern University Medical School, Chicago, 1909; aged 52; was accidentally shot and killed, October 18, while hunting.

William L. Cuddeback, Port Jervis, N. Y.; Bellevue Hospital Medical College, New York, 1876; member of the Medical Society of the State of New York; formerly bank president; aged 77; died, October 31.

Joseph Jackson Skelton, Huntington, W. Va.; University of Louisville (Ky.) School of Medicine, 1902; aged 67; was instantly killed, October 18, when the automobile in which he was driving was struck by a train.

Henry Howard Mason, Butler, Ala.; University of Alabama Medical Department, Mobile, 1903; member of the Medical Association of the State of Alabama; aged 58; died, October 29, of cerebral hemorrhage.

Walter Tracy Fuller, Boston; Boston University School of Medicine, 1895; member of the city health department; aged 68; died, October 29, in the City Hospital, of intestinal obstruction and chronic myocarditis.

Edward Gustine Higgins, Melrose, Wis.; Milwaukee Medical College, 1904; member of the State Medical Society of Wisconsin; aged 55; died, October 28, in Rochester, Minn., of carcinoma of the rectum.

William Hanford Todd, Dobbs Ferry, N. Y.; Medical Department of Columbia College, New York, 1890; at one time health officer of the villages of Dobbs Ferry and Irvington; aged 70; died, October 21.

James Henry Meek, Bellaire, Ohio; Ohio Medical University, Columbus, 1898; member of the Ohio State Medical Association; formerly on the staff of the City Hospital; aged 69; died, October 24.

Roy B. Leach ⊕ Joliet, Ill.; Rush Medical College, Chicago, 1901; aged 55; on the staffs of St. Joseph's Hospital and the Silver Cross Hospital, where he died, November 1, of chronic myocarditis.

William August Ocker, Indianapolis; Cincinnati College of Medicine and Surgery, 1897; director of physical education in the public schools of Indianapolis; aged 61; died, November 13, of heart disease.

Wesley Van Nette, Clyde, Ohio; Northwestern Ohio Medical College, Toledo, 1890; member of the Ohio State Medical Association; aged 75; died, November 5, of a sarcoma in the left groin.

Robert Coltman, Jr., Washington, D. C.; Jefferson Medical College of Philadelphia, 1881; aged 69; died, November 3, of chronic interstitial nephritis, myocarditis and acute dilatation of the heart.

William Sherman Warren, Jacobsburg, Ohio; Starling Medical College, Columbus, 1896; member of the Ohio State Medical Association; aged 54; died, November 8, of cerebral hemorrhage.

George W. Bogart, New York; Medical Department of the University of the City of New York, 1890; member of the Medical Society of the State of New York; aged 72; died, October 31.

Oscar William Lowery, Des Moines, Iowa; College of Physicians and Surgeons, Keokuk, 1873; member of the Iowa State Medical Society; Civil War veteran; aged 86; died, October 18.

W. D. Foster, Gravette, Ark. (licensed, Arkansas, 1903); formerly mayor of Gravette and justice of the peace; aged 78; died, October 29, in Topeka, Kan., of influenza and bronchopneumonia.

William Fleming Shellhorse, Jacksonville, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1916; aged 55; died, October 30, of diabetes mellitus, carbuncle and lobar pneumonia.

Herbert Nelson Leete ⊕ Twin Falls, Idaho; Rush Medical College, Chicago, 1904; aged 57; died, October 1, in the County Hospital of septicemia following a surgical infection of the hand.

Edward Pisko ⊕ New York; University of Vienna Faculty of Medicine, Vienna, Austria, 1888; on the staff of the Hospital for Joint Diseases; aged 69; died, November 11, of heart disease.

Robert Wesley Frey, Trenton, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1887; member of the Kentucky State Medical Association; aged 70; died, October 10.

Miram Gardner, Cedar Falls, Iowa; University of Michigan Medical School, Ann Arbor, 1886; member of the Medical Society of the State of New York; aged 79; died, September 17.

Elinor Van Buskirk Cummins, New York; Boston University School of Medicine, 1907; University of Vienna Faculty of Medicine, Vienna, Austria, 1908; aged 53; died, October 20.

William E. Howley ⊕ New York; Medical Department of the University of the City of New York, 1891; aged 65; on the staff of St. Francis Hospital, where he died, September 28.

Maxwell Lewis Volk, New York; Columbia University College of Physicians and Surgeons, New York, 1905; aged 47; died, September 18, of cerebral hemorrhage and edema.

John Douglas Simpson, Minneapolis; Chicago Medical College, 1881; an affiliate Fellow of the American Medical Association; aged 73; died, October 18, of chronic endocarditis.

Arthur Allison Howard, Boston; Harvard University Medical School, Boston, 1909; aged 52; died, October 7, in the City Hospital, of arteriosclerosis and chronic myocarditis.

Albert Lodge, Detroit; University of Michigan Homeopathic Medical School, Ann Arbor, 1879; aged 79; died, November 4, of myocarditis, uremia and interstitial nephritis.

George Edgar Mulford, Morristown, N. J.; College of Physicians and Surgeons in the City of New York, 1882; aged 76; died, November 1, of a self-inflicted bullet wound.

George William Compton, San Diego, Calif.; Denver Homeopathic College, 1898; aged 65; died, October 21, of acute dilatation of the heart and chronic myocarditis.

Benjamin F. Collins, Steubenville, Ohio; Columbus Medical College, 1892; formerly on the staff of the Ohio Valley Hospital; aged 62; died, November 8, of myocarditis.

Charles A. Isbell, Paducah, Ky.; Howard University School of Medicine, Washington, D. C., 1891; aged 66; died, June 9, in Detroit, of cerebral hemorrhage.

Flora Hubbard Ruch, Lansing, Mich.; University of Michigan Medical School, Ann Arbor, 1882; aged 80; died, November 5, in Binghamton, N. Y., of nephritis.

Herman Andrew Reque ⊕ Brooklyn; Rush Medical College, Chicago, 1906; on the staff of the Norwegian Hospital; aged 57; died, November 4, of pneumonia.

Frederick James Carley ⊕ North Attleboro, Mass.; Tufts College Medical School, Boston, 1906; aged 53; was found dead, November 10, with a bullet wound.

William E. Witter, Rochester, N. Y.; Chicago Homeopathic Medical College, 1890; formerly a missionary; aged 78; died, November 5, of arteriosclerosis.

Robert Victor Swanton ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1901; aged 53; died, November 5, of chronic myocarditis.

Julia Thomas, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1891; Victoria University Medical Department, Coburg, 1892; died, June 28.

Romeo Arsborne Johnston, Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1909; aged 47; died, October 11, of heart disease.

Jennie Fuller, Hartland, Maine; Boston University School of Medicine, 1882; aged 79; died, July 9, in Portland, of coronary thrombosis and myocarditis.

Gerry Elbridge Emanuel, Edgerton, Ohio; Rush Medical College, Chicago, 1884; aged 68; died, October 24, of cerebral arteriosclerosis and nephritis.

Charles Jefferson Stewart, Heiberger, Ala.; University of Alabama Medical Department, Mobile, 1891; aged 66; died, October 4, of heart disease.

James Harvey Stallard, Geuda Springs, Kan.; Barnes Medical College, St. Louis, 1901; aged 73; died, July 7, of carcinoma of the liver.

James M. Henry, Notus, Idaho; College of Physicians and Surgeons, Chicago, 1885; aged 74; died, September 21, of intestinal hemorrhage.

John B. Zabriskie, Nice, France; Long Island College Hospital, Brooklyn, 1894; aged 61; died, October 28, of cerebral thrombosis.

James Borthwick Hutton, Ceylon Station, Sask.; Queen's University Faculty of Medicine, Kingston, Ont., 1909; aged 43; died, August 2.

David Brownlee Lazier, Fraser Lake, B. C., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1901; died, August 3.

William Arthur Stenning, Sherbrooke, Que., Canada; McGill University Faculty of Medicine, Montreal, 1894; died, September 2.

Samuel Addison Marable, Palmyra, Tenn.; Vanderbilt University School of Medicine, Nashville, 1882; aged 77; died, October 30.

Richard Smith Conboy, Toronto, Ont., Canada; Medical Faculty of Trinity University, Toronto, 1903; aged 51; died, October 24.

Frank M. Boyce, Houston, Texas; Albany (N. Y.) Medical College, 1872; aged 80; died, November 2, of gangrene of the foot.

James Pickett Colvin, Lincoln, Ala.; Kentucky School of Medicine, Louisville, 1891; aged 67; died, November 1, of uremia.

David Gross, Glenwood, Iowa; Creighton University School of Medicine, Omaha, 1929; aged 26; died, November 5, of heart disease.

Granville Warburton, Brooklyn; Bellevue Hospital Medical College, 1883; aged 75; died, August 26.

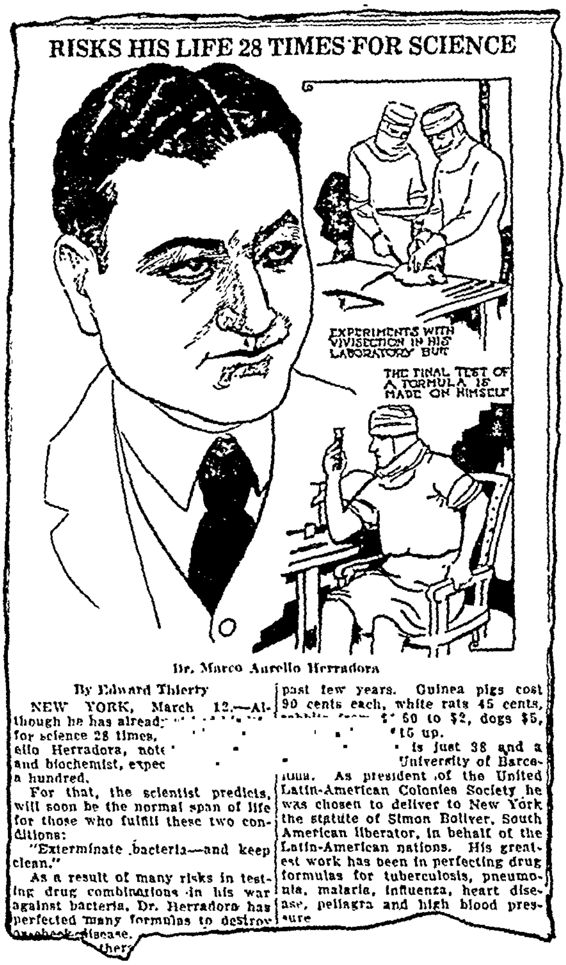
Bureau of Investigation

MARCO AURELIO HERRADORA

And Some Preparations of a Specialist in "Research Regarding Therapeutics"

Marco Aurelio Herradora, according to the 1931 New York City telephone directory, is at 43 West 16th Street, telephone Chelsea 3109. At the same address and with the same telephone number is the "Spanish Biochemical Institute" and the "*Unité Pharmaceutique Française.*"

Early in 1923, newspaper puffs of a syndicated article on Marco Aurelio Herradora were published, accompanied by pictures of this person and describing him as a "noted therapeutist and biochemist" who expected to live to be a hundred. Herradora was described in this article as a graduate of the University of Barcelona and as president of the United Latin-American Colonies Society. The newspaper article ended with the statement:



RISKS HIS LIFE 28 TIMES FOR SCIENCE

EXPERIMENTS WITH VIVISECTION IN HIS LABORATORY BUT
THE FINAL TEST OF A FORMULA IS MADE ON HIMSELF

Dr. Marco Aurelio Herradora

By Edward Thierty

NEW YORK, March 12.—Although he has already for science 28 times, ello Herradora, note and biochemist, expec a hundred.

For that, the scientist predicts, will soon be the normal span of life for those who fulfill these two conditions:

"Exterminate bacteria—and keep clean."

As a result of many risks in testing drug combinations in his war against bacteria, Dr. Herradora has perfected many formulas to destroy or check disease.

past few years. Guinea pigs cost 90 cents each, white rats 45 cents, 60 to $2, dogs $5, 15 up.

is just 38 and a University of Barcelona. As president of the United Latin-American Colonies Society he was chosen to deliver to New York the statute of Simon Bolivar, South American liberator, in behalf of the Latin-American nations. His greatest work has been in perfecting drug formulas for tuberculosis, pneumonia, malaria, influenza, heart disease, pellagra and high blood pressure

Photographic reproduction (reduced) of a syndicated article on Herradora that appeared in various newspapers in 1923.

> "His greatest work has been in perfecting drug formulas for tuberculosis, pneumonia, malaria, influenza, heart disease, pellagra and high blood pressure."

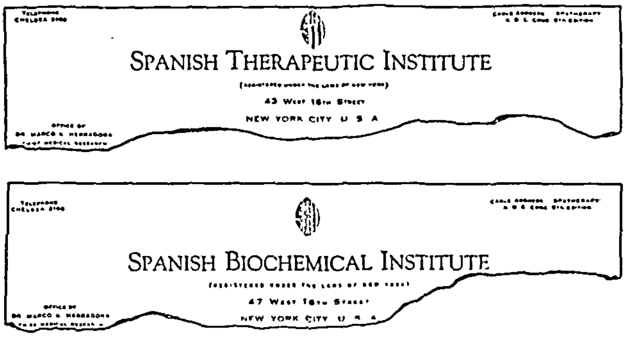
In 1922, "Marco Aurelio Herradora, M.D.," was described as president of the Scientific Chemical Company of New York, which at that time put out a line of preparations for intravenous use. These products were submitted to the Council on Pharmacy and Chemistry, which after careful consideration refused to accept any of them. The Council declared that the preparations were fundamentally irrational and that the advertising matter indicated that the firm was much more interested in persuading the unthinking to use its specialties than it was in scientific therapy. The report, which occupied nearly two pages of The Journal, appeared in the issue of April 23, 1923, after a year had been devoted to a consideration of the products.

The Journal for November 21, 1925, again reported briefly on the Herradora products and again reminded physicians that these products were unacceptable because of unwarranted and unsubstantiated statements and because of the complex and indefinite mixtures of drugs represented by the Herradora preparations.

In 1925, a questionnaire on stationery headed "Marco A. Herradora, M.D.," was sent to osteopaths, who were addressed as "Dear Doctor." One of the questions propounded to those osteopaths who received Herradora's questionnaire was whether they considered that osteopaths who had the M.D. degree, in addition to the "D.O." degree, had benefited either themselves or the osteopathic "profession."

In 1930, Herradora was reported as having sent a letter to a physician asking him if he would appreciate the opportunity of becoming "one of the physicians of a new Club" which he (Herradora) was helping to organize. The doctor who *would* appreciate such an opportunity would have "to contribute $1,000 as a small part toward organization expenses and equipment of the medical division."

The *Unité Pharmaceutique Française* was incorporated under the laws of Delaware, and the public has been solicited to purchase stock. The stock-selling scheme was of the familiar type—a bonus of shares of common stock to be given free to those who purchased five shares of the "7 per cent cumulative preferred at $20 a share." The *Unité Pharmaceutique Française* puts out a line of "patent medicines": "Sonedine" for rheumatism, neuralgia and gout; "Exhaline" for asthma; "Rubiline" for gallstones; "Antisol," to "aid in keeping the kidneys clean"; "Conchaline" for the sexual rejuvenation of elderly people; "Dodgeline" for tonsillitis; "Madreline" to purify the blood, and "Jenniline" for nasal catarrh and sinusitis.



SPANISH THERAPEUTIC INSTITUTE
43 West 16th Street
NEW YORK CITY U S A

SPANISH BIOCHEMICAL INSTITUTE
47 West 16th Street
NEW YORK CITY U S A

Photographic reproduction (reduced) of the letterheads of the Spanish Therapeutic Institute which later became the Spanish Biochemical Institute. This concern puts out "Vitamineralis" described as "The material from which life is created."

Herradora is described on some of the letterheads, as "Chief Medical Research" of the "Spanish Biochemical Institute," which was earlier known as the "Spanish Therapeutic Institute"—a name which violated local laws and had to be changed. The Spanish Biochemical Institute puts out "Vitamineralis," which is said to be "the Material from Which Life is Created." According to an advertising circular:

> "Vitamineralis is a combination of *sterolized minerals* similar to those entering the composition of the human body. Due to the fact that *Vitamineralis* contains *calcium, phosphorus, fluorine, potassium, sulphur, silicon, iodine, magnesium, iron, sodium, manganese, chlorine* and other minerals, it beneficially influences daily replenishment and reconstruction of the body. These minerals by renovating organic forces protect the individual constitution from decay that comes from exhaustion and diminishment of these life substances in the human economy." [Italics in the original.—Ed.]

The circular then goes on to describe the "Function of Minerals" in "preserving life." The circular states that such minerals should "never be given separately, alone, but in combination with the others, *simultaneously, in adequate proportions, at the same time.*" [Italics as in original.—Ed.]

The reader is then given some interesting alleged information regarding certain elements, a paragraph being given to each element. We can quote from but part of this material:

> "*Fluorine* . . . When the feet and arm pits produce disagreeable odors, it will be an evidence of the need of *fluorine in the system.* Carbon counteracts fluorine, calcium and iron."
>
> "*Potassium* . . . Its exhibition in the body will prevent constipation, nervous disorders, general weakness."
>
> "*Sulphur* . . . Through its purifying qualities it clears the skin, preserving same from infection. Carbon controls sulphur."
>
> "*Silicon* . . . *is necessary to those doing mental* work. Carbon counteracts silicon."
>
> "*Magnesium* . . . When the system is lacking in magnesium, insanity, neurasthenia and hysteria may be the consequences."
>
> "*Iron* . . . Yes, iron will help blood forming organs but unless properly *vitaminized and sterolized* it will not be properly assimilated *by the body* and *may also perturb the kidney* function very severely. . . . It is a brain food very necessary to people doing mental work. . . . Its indiscriminate use causes stupidity, atrophia, plethora and many functional derangements such as hemorrhages and others."
>
> "*Sodium* . . . used without due control will cause the same effect to the circulatory vessels as sea water does cause to an iron rod."
>
> "*Manganese* . . . acting like the dark chamber of a photographic studio is the connecting element of the organism of brain matter serving as a point of contact to its dynamic emanation. It flashes thoughts as a regenerative constructive power of brain transmission . . . It helps to give stamina and determination of character."
>
> "*Chlorine* . . . arrests the progress of muco-purulent formations and catarrh, albuminuria, obesity and protects the nervous system. Chlorine is controlled by hydrogen, nitrogen and carbon."
>
> "*Carbon* . . . Used indiscriminately it interferes with iron assimilation, causing an acid reaction that is damaging to the teeth, bones, brain and digestion producing auto-intoxication, goitre, heart involvement and serious impairments of mental forces. When deficient it causes enduration, *atrophy, eczema.*"

In view of the marvelous effects that are to be expected from the use of this latest addition to the field of catholicons, it is interesting to learn that "Vitamineralis is now served at the best homes of learned intelligent people and will enter the high-class soda fountains as a wholesome good habit."

A few weeks ago, an inquiry came in to the Bureau of Investigation regarding the Spanish Biochemical Institute, reading in part as follows:

> "Do you have an acquaintance with the activities of the Spanish Biochemical Institute, which is located at 47 West 16th Street, New York, N. Y.? If so, we will be very appreciative of all the facts that you can supply. The Spanish Biochemical Institute is introducing commercially a product, baptized 'Vitamineralis,' said to be 'the life substance,' which is described at length, in quaint style, in the enclosed circular. It is reported that the literature of the Spanish Biochemical Institute is now being distributed among food manufacturers and especially among carbonated beverage producers. Letters from the Spanish Biochemical Institute are usually signed by Marco A. Herradora, Director."

Our correspondent further stated that his inquiry was prompted by a letter that Herradora had written to a business concern in connection with the use of Vitamineralis, and that in his letter, Herradora had thus described himself:

> "'In regards to the writer's [Herradora's] qualifications, you will find his name listed in the enclosed booklets as a member in good standing of the Medical Association of the Greater City of New York, affiliated with the Academy of Medicine, also as the Chairman of the Hospital Committee of the International Association of Physicians, Surgeons and Dentists, member in good standing of the Yorkville Medical Society. This in no way should be construed as the writer doing clinical medical work, but exclusively devoted to medical research. . . . The undersigned, who has devoted more than twenty years of study and research to subjects of this nature, is prepared to furnish to you unquestionable references as to his integrity and scientific standing.'"

Herradora's claim, that he is a member in good standing of the Medical Association of the Greater City of New York, astonishing as it may seem, is correct. This in spite of the fact that that organization has been advised of Herradora's past and present activities in the nostrum field and has been sent a photostatic copy of a letter from the Rector of the University of Barcelona, who, in response to an inquiry from the American Medical Association, declared definitely that no man by the name of Marco Aurelio Herradora was a graduate in medicine of the University of Barcelona.

In January, 1931, Herradora was brought into court on the charge of unlawfully practicing medicine. Evidence was submitted by an investigator for the State Department of Education of New York that Herradora examined her, gave an alleged diagnosis, and prescribed a bottle of Sonedine, one of the "patent medicines" put out by the *Unité Pharmaceutique Française*. Herradora testified, on the other hand, that he made no examination or diagnosis, but merely sold the woman a bottle of Sonedine. His testimony was supported by that of two of the employees. After hearing all the evidence, which was given before three justices—Walling, Voorhees and Direnzo—the verdict was:

"A majority [two out of three] of the court has a doubt and the defendant is acquitted. Mr. Justice Voorhees dissents."

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BACTERIAL ENDOCARDITIS

To the Editor:—When a girl, who is now 12, was 3 years of age, her mother was told that the child had a heart murmur. At the age of 9, the tonsils were removed. The patient has never had a definite attack of rheumatic fever but has had indefinite pains in the joints. The past history otherwise is negative. About the middle of July, 1931, the patient was caught in a severe electrical storm about half a mile from her home. Being frightened, she ran as fast as she could to her home. From that time until I saw her, she became listless and pale. When I saw her, Aug. 6, 1931, she was a well nourished, well formed child, up and around the house. She had a temperature of 101, a pulse of 130 and a loud systolic murmur at the apex. She was decidedly anemic. There was a definite moderate enlargement of the right side of the heart. I made a diagnosis of an acute attack of chronic endocarditis, with acute dilatation probably induced by the exertion. I put her to bed, gave her salicylates with alkali, plenty of sugar, citrus drinks and water. I started her on iron and gave bromides at night. An ice cap over the heart quieted the uneasy pain present there. About ten days after this, I noticed a new murmur, systolic, over the aortic area. Since the onset, the temperature has been decidedly septic, at times returning to normal. Small ecchymotic areas have developed all over the abdomen and the upper portion of the chest. The spleen is now definitely enlarged and tender. The liver margin is not enlarged but is somewhat tender. At first, the patient was nervous and subject to trembling, but now she has attacks of moderate stupor. The urine contains some albumin and numerous bacteria. I had an internist see her, and he suggested small doses of digitalis and liver extract. He would give me no prognosis. The picture now is one of much discouragement. The pulse stays rapid but regular. The patient does not have any edema of the extremities but does have transient indefinite puffiness of the face. The temperature shows no intent to return to normal. There is no blueness of the lips, cheeks or fingernails, but the anemia is not getting any better; in fact, it appears worse. The patient is losing some weight despite my attempts at a nourishing diet. The bowels are regular, but the appetite is poor. The parents, who are of limited means, are naturally much worried over the course of this attack. I realize that these cases sometimes take months to show recovery, even with absolute bed rest. Will you please tell me of anything else that I can do? Do you think this child will recover? If you do, to what extent do you think that her heart will be permanently crippled? Have you any idea as to how long this acute septic process with fever is going to last? She has had some moderate pains in the joints and swelling since I have been seeing her. The murmurs are loud and distinct. When the temperature goes down to near normal, the pulse gets much weaker and the child more stuporous. Please omit name.

M.D., New York.

Answer.—The history and observations as given are indicative of a bacterial endocarditis which is probably more than subacute. From the evidence there can be little doubt in regard to the diagnosis. The overexertion probably had little to do with the onset. The enlargement of the heart is due to infection and not to dilatation from overexertion. About three fourths of such cases occur in patients who have previously had rheumatic fever, and in this case the history of definite pains in the joints is probably indicative of rheumatic infection at that time. Becoming wet and chilled at the time of the storm might have predisposed to an infection of the upper respiratory tract, which later localized itself in an already damaged heart.

The prognosis is practically hopeless. There are cases of subacute bacterial endocarditis in which recovery is made, but these constitute a small percentage, and they are usually the milder forms. In the cases in which the observations are as they are here, the mortality is 100 per cent.

No medicine or treatment known at present will have any effect on the progress of the disease. There is no treatment except absolute rest in bed, and quiet, and time. All that can be done is to make the patient as comfortable as possible and to employ symptomatic treatment if this is necessary. There is no especial reason for the digitalis and it is doubtful whether the liver extract is of any value.

There is no possible way of giving an estimate as to how long this will continue. The symptoms in the joints are moderately frequent in subacute bacterial endocarditis.

DIAGNOSIS AND TREATMENT OF SYPHILIS

To the Editor:—A woman, aged 22, was found about three years ago in the course of exhaustive examinations to determine the cause of a marked nervousness to have a 3+ Wassermann reaction, and her mother recalled that as an infant under the care of a colored nurse girl she had developed skin manifestations which probably were secondaries. Treatment carried out to cure her syphilis since the positive Wassermann has failed to change the reaction. She recalls no recurrences of active early lesions of syphilis, and is apparently perfectly well. Will you please answer the following: Should further treatment be persisted in? If so, what other than the arsenicals and mercury? What can I tell the patient about her 3+ Wassermann reaction? Is she infectious? Can she marry without running the danger of transmission of the infection? In taking her blood for a Wassermann test, am I running the chance of an infection? Should a case of this type, without any signs of lesions or ill health and with only the 3+ Wassermann, be reported as a case of syphilis, to be put under the same supervision and precautionary instructions that the health department insists on in active syphilis? Please omit name.

M.D., New York.

Answer.—The history of this young woman is not covered in sufficient detail in the inquiry to permit an intelligent answer to the question. No examination of the family and no account of evidence bearing on the question of prenatal rather than postnatal infection is given. The skin manifestations appearing in infancy need have had no connection with the colored nurse girl. The mother of the patient in particular and the family at large, including siblings, should be studied to determine whether or not this young woman is the victim of a prenatal infection. If she is, the indications for treatment, the prognosis and decisions with reference to marriage, children and public health reporting and management differ entirely from those in what might be an early acquired case. Persistent and irreversible positive blood Wassermann reactions are known to occur both in early cases of acquired infection in which the patient has lived through to adult life practically without treatment and unaware of the presence of the disease as well as in prenatal infection unrecognized until the later years. If the infection is postnatal, an examination of the spinal fluid, which is not mentioned in the inquiry, is a necessary part of the determination of the status of the patient.

Granted that the infection was acquired in infancy or was prenatal, it is highly improbable that the patient is in the least infectious and there is therefore no reason for exercising the authority of the public health officials for the prevention of the infection of others. The question as given contains no account of previous treatment and therefore it is impossible to advise on further treatment. What is really required in the management of a case such as this is familiarity with the general principles of modern syphilology on the basis of which all the questions asked and a number of those which should be asked but on which the questioner provides no information could be easily answered.

APOPLEXY WITH FEVER AND LEUKOCYTOSIS

To the Editor:—A corpulent old lady had some rather vague abdominal symptoms and at the same time developed gradually, without loss of consciousness, a partial hemiplegia. During the three days that this was going on, she had a fever of 101 to 103.5 F. and a leukocytosis which reached 22,000 with 92 per cent polymorphonuclears. The question which arose, and which I wish to ask you, is this: Could this blood picture have been caused by a simple apoplexy? There was no reason to suspect encephalitis or septic emboli. It was more like thrombotic softening. I understand that such conditions can cause fever, but can they cause a leukocytosis of 22,000, or any leukocytosis? Please omit name.

M.D., Missouri.

Answer.—Cerebral hemorrhage frequently causes fever and leukocytosis and may have been the underlying factor in the patient mentioned. Obesity is often associated with atherosclerosis in elderly patients and could be a predisposing factor. Less likely is a cerebral embolus from a mural thrombus, which may have become separated from the auricular wall or auricular appendage. It is not necessary for such an embolus to be infected in order to produce fever and leukocytosis, as it is known that the sterile product of the resulting cerebral injury may cause similar manifestations.

ALOPECIA, EXFOLIATIVE DERMATITIS AND SYPHILIS

To the Editor:—I have a patient who came to me with a skin condition which I diagnosed as exfoliative dermatitis based on a history of treatment for syphilis. In addition to the dermatitis he has completely lost the hair of the scalp, face, eyebrows and lids. This condition is of about eight weeks' duration. I should like to be advised as to whether or not there is any chance of stimulating a new growth; also the procedure. When the patient first came to me, seven weeks ago, I gave him daily for fourteen days intravenous injections of sodium thiosulphate, and other treatment was symptomatic. What should the antisyphilitic treatment be in this case? Please omit name. M.D., Illinois.

Answer.—The alopecia accompanying exfoliative dermatitis as described in this patient may be an alopecia totalis, coincidental with, or associated with, the intoxication process that brought on the dermatitis. If such is the case, the outlook for at least a temporary recovery of hair spontaneously as the dermatitic process clears up and the patient regains normal health is fairly good. It is impossible, however, to offer any assurance that the hair will not be again completely lost without any nécessary association with the dermatitis. The correspondent does not give sufficient detail to judge whether the exfoliative dermatitis is actually a result of treatment for syphilis or whether the patient may not even present the exfoliative process with thinning or relative absence of the hair that is occasionally observed in the so-called ichthyosiform erythroderma. This matter, however, is a congenital affair and could hardly be confused with the picture described.

Stimulation of a new growth of hair may be to some extent aided by vigorous exposure of the scalp to the quartz mercury vapor lamp. It is inadvisable in view of the exfoliative dermatitis to use local irritants which constitute the next alternative. With reference to further antisyphilitic treatment, it is impossible to base any decision on the facts given by the correspondent as there are no particulars with reference to the stage and character of the syphilitic infection, or of the previous treatment. It may at least be said, however, that a careful patch testing of the patient for sensitivity to the arsphenamines should be conducted by some one familiar with this type of work, and that if such patch testing reveals a specific sensitivity to the arsphenamines these drugs at least should be permanently debarred from the therapeutic regimen.

CONSTIPATION IN A BREAST FED BABY

To the Editor:—Will you kindly inform me as to how to treat constipation in a breast fed baby? The child is 5 months old, weighs 13 pounds and 12 ounces (6 Kg.), and appears to be perfectly normal otherwise, except for a persistent and almost intractable constipation. Rectal examination gives negative results. The child apparently does not have any pains or cramps that would lead one to suspect a chronic obstruction. Some suggestion as to treatment would be greatly appreciated. Please omit name. M.D., South Dakota.

Answer.—Constipation in a breast fed baby is a different thing from constipation in a bottle fed baby. In the latter, the movements are often hard; in the breast fed baby they are never so. The treatment, therefore, is different. Commonly, constipation in the breast fed baby is due to the fact that the child is not getting enough food and, if an ample supply of milk, cereals, vegetable purées and orange juice is given, the condition will commonly remedy itself. If it does not, there is no objection to the use of a nonirritating suppository, such as one made of gluten or soap covered with oil or petrolatum. If the constipation still persists in spite of the additional food, there is no objection to giving liquid petrolatum or magnesia magma daily up to the necessary amount.

In the purely breast fed baby there is no objection to letting the baby go two, or sometimes even three, days before it has a movement. That there is no mechanical obstruction in this case is evident from the lack of pain or "cramps" and abdominal distention.

TYMPANITES

To the Editor:—Could you refer me to a source of information on tympanites? I have a patient, aged 50, with a history of chronic constipation for years, and pain in the lower left quadrant, with a spastic colitis. With rest, hot packs, diluted hydrochloric acid, atropine, bacillus acidophilus milk and lactose, and a bulky diet and oil enemas, the stools are fairly well formed and the spastic colon is improved. However, even after an adequate evacuation, he is troubled with gas. I am under the impression that the putrefaction of protein causes this tympanites, but a restricted protein intake has been of no benefit. Could you suggest a further means of therapy? Please omit name. M.D., Nebraska.

Answer.—Tympanites is ordinarily considered a chronic accumulation of gases in the intestinal canal. Briefly, the gases may originate from exogenous causes, such as aerophagy in nervous individuals or in rapid eaters, or from endogenous sources, principally the result of the action of bacteria on proteins, carbohydrate and fats. Impeded expulsion of gases, even though the quantity may be normal, can occur with any form of chronic constipation, and in every case a cause for intestinal stenosis must be sought. Cardiac decompensation and general arteriosclerosis are further causes.

In regard to treatment, the etiologic agent should be sought and treated if found. Changes in the constituents of the diet are recommended, such as low protein, low fat or low carbohydrate. Of the latter, rye bread, vegetables rich in cellulose, and potatoes are particularly harmful. Dietary changes depend on whether putrefaction or fermentation are the causes of the gas. Medicinal measures, aside from hydrochloric acid, atropine or atropine-like substances, physostigmine and pituitary solution, have been shown to be of little avail. Colon irrigations with various antiseptic substances have been successful.

DILATED VESSELS IN VAGINA FOLLOWING RADIUM TREATMENT

To the Editor:—I have a patient who had radium treatment for uterine fibroids and an amputation of the cervix five years ago. Since that time she has complained of tenderness and pain in the pelvis and extreme sensitiveness throughout the birth canal. She is unable to have intercourse on account of the pain. A vaginal examination is practically impossible. The vulva and the vagina are both covered with enlarged venules. There are no palpable enlargements in the pelvis and no discharge to speak of. Twenty years ago she had both breasts removed for suspicious malignancy. She is 49 years old. She has not menstruated for three years. Can you tell me whether the hypersensitiveness is the result of radium treatment? Can you suggest any treatment in this case? Kindly omit name. M.D., Michigan.

Answer.—The condition of dilated vessels of the vagina and vulva is not common following radiotherapy, though the close time relationship is suggestive in this case.

The sequelae that are due to irradiation are dependent largely on the dosage, filtration and the age of the patient and are the result of varying amounts of cell and tissue destruction with resultant scar formation if and when healing occurs. Any or all tissues within the radius of activity of the radium may be involved. The cicatricial contraction that may result could cause circulatory obstruction with dilatation of the terminal vessels. These tissue changes following the use of radium are not infrequently associated with pain and tenderness as well as narrowing of the vaginal lumen, especially in those cases in which the vagina has been exposed to the effect of the radium.

It is also possible that there may be some interference with uterine and vaginal drainage as the result of scar formation following the cervical operation or the radium treatment.

It would seem necessary to determine even under anesthesia whether or not there are any strictures of the vagina or cervix which are making difficulty. If there are they should be carefully dilated, or, if this cannot be accomplished, other necessary steps should be taken.

The condition might of course be something that is entirely unrelated to either the operation or the radium treatment.

POLIOMYELITIS AND PREGNANCY

To the Editor:—I should like to gain information regarding a case of poliomyelitis in a woman, aged 20, with a pregnancy of six months' duration. At the end of the third day the patient has no paralysis. She received 20 cc. of convalescent serum the first day and 15 cc. the second. Does the combination with pregnancy change the ordinary picture of the disease concerning the mother and what can be expected in the baby if the pregnancy terminates normally? Will there be any paralysis in the child, if the mother does or does not have paralysis? C. J. Lohmann, M.D., Burlington, Iowa.

Answer.—Although there are no statistics available on the occurrence of poliomyelitis during pregnancy, some observers have the impression that the disease occurs in the later months of pregnancy more often than would be expected if it were only a chance coincidence. If this proves to be the case, it would suggest that some physiologic alteration during pregnancy may affect susceptibility to infection with poliomyelitis.

Paralysis of certain muscle groups may necessitate instrumental aid in delivery. However, some of the observed cases, even with extensive paralysis, have terminated in normal delivery of a normal child. In one instance in which delivery took place while the mother was in the acute stage of poliomyelitis, the child is said to have developed the disease after birth; but it is not clear whether infection was contracted in utero or after birth.

The Harvard Infantile Paralysis Commission is studying this question and would be glad to have reports of any such cases.

TREATMENT OF FLATFOOT

To the Editor:—I have a patient, aged 2 years, who has an extreme degree of flatfoot or relaxed arch, depending on the different classifications. This child objects to going barefooted owing to the discomfort. The child is not overweight and has walked since the age of 16 months. Please advise as to the proper treatment and expected prognosis of the condition. Please omit name. M.D., Kansas.

Answer.—If the child has an extreme degree of flatfoot, the best treatment is a series of plaster-of-paris casts, maintaining varus position of the posterior half of the foot and valgus position of the anterior portion of the foot; i. e., the heel is tilted toward the outer border and the sole toward the inner border. These casts should be applied by one thoroughly trained in orthopedic work, or harm can be done. They should be changed once in three weeks, and the child should be encouraged to walk after the cast is 24 hours old.

After a number of casts, which varies from one pair to three or four pairs, the child should be fitted with the proper shoes: rigid shank, high-laced shoes, well fitted around the ankle, with a straight inner borderline and round toe. The heel of this shoe should be three-fourths inch longer on the inner border than on the outer. It should be three-sixteenths inch higher on the inner border. The outer border of the sole should be one-eighth inch higher than the inner. Felt pads should be put into the shoes to support the longitudinal arches.

If the child continues to walk with pronation, the uppers of the shoe should be reinforced by leather molded or cut over the malleoli. The child should walk on the outer borders of his feet. Any textbook of exercise provides suitable exercises for improving the longitudinal arch.

EPIDERMOLYSIS BULLOSA

To the Editor.—A man, aged 31, slightly overweight but otherwise in perfect health, for about fifteen years has been troubled with blisters on his feet after any unusual exertion, such as playing golf, excessive walking, or dancing. They appear the morning after one of these forms of exercise and have the appearance of ordinary bullae, sometimes filled with clear fluid and less often with blood. They do not itch, are as painful as the average bullae, and keep the patient off his feet about two days during the height of the attack. They take the usual length of time for a bulla to heal and then reappear after the next exertion. He has had treatment from dermatologists, chiropodists and internists, all without relief. He has worn every type of shoe on the market, from the softest to the hardest made, and also shoes made in a special form to prevent irritation. The lesions are confined to the feet and do not appear in any other part of the body. The urine is normal. Can you suggest a diagnosis, the proper procedures to follow, and treatments? Please omit name and address. M.D., New York.

Answer.—The most likely disorder in which bullae occur following slight trauma is epidermolysis bullosa. If the patient has this, it will be difficult to use treatment that will be of much service.

The cause of epidermolysis bullosa is unknown. A diminution in the amount of elastic tissue in the skin has been described by Engman and confirmed by others. Many suggestions have been made, but no conclusive observations have been recorded. The prevention of injury, together with treatment of the symptoms as they arise, is all that can be recommended. Arsenic compounds and other specific cutaneous agents have not had any effect on the progress of the disease.

REMOVAL OF FLOWERS FROM HOSPITAL ROOMS AT NIGHT

To the Editor:—It seems to be a universal practice in hospitals to remove vases of flowers from a sickroom for the night. Plants liberate oxygen, as we all know, when growing in soil. Why should flowers in a vase be removed? One hospital superintendent stated that she was taught that the process is reversed: that carbon dioxide is liberated.
R. J. Stein, M.D., Graceville, Minn.

Answer.—It is difficult to give any definite reason why the removal of flowers from the sickroom at night has become an institutional routine. The statement of one hospital superintendent that carbon dioxide is liberated is apparently not correct. Living plants absorb carbon dioxide and give off oxygen. It is doubtful whether cut flowers do this to an appreciable extent; and even if the cut flowers did decay, the amount of carbon dioxide liberated would have practically no effect on the ratio of carbon dioxide to oxygen in the air of the room. Generally the flowers are removed to a warmer room at night rather than to a cooler room, so that preservation of the flowers is not an argument. Furthermore, if the odor of flowers is bad for the patient at night, it would seem logical to assume that it would also be bad for the patient in the daytime.

The inquiry was also referred to an authority on hospitals, who replies: "There is a certain psychologic effect on the patient in seeing flowers wither and there is a beneficial psychological reaction in most instances when, after a night's rest, fresh flowers, or flowers that are apparently fresh, are brought into the room to lend a little color to the patient's surroundings. . . . The procedure of removing flowers from the patients' rooms at night and returning them in the morning is a rather beneficial one, from the patients' standpoint."

IDIOSYNCRASY TO GOLD SODIUM THIOSULPHATE

To the Editor:—Information is requested as to the treatment of severe enteritis, manifested by diarrhea and abdominal cramps, following a series of injections of gold sodium thiosulphate, given for lupus erythematosus. The patient showed marked idiosyncrasy to 25 mg. intravenous doses, manifested by swelling about the eyes and neck, by dizziness and other signs. The skin lesions have cleared nicely, but the patient now has an intractable and typical heavy metal enteritis. Is sodium thiosulphate useful in combating this? M.D., California.

Answer.—Most observers are not impressed with the efficacy of sodium thiosulphate as used in combating the toxic manifestations associated with injections of gold sodium thiosulphate. It would seem that enteritis ostensibly following the administration of a metal should be dealt with in this way plus the administration of calcium intramuscularly as the gluconate, for example, and by the use of appropriate measures, such as a non-residue containing diet, an insoluble bismuth compound such as the subcarbonate, and charcoal in 4 Gm. doses by mouth, rest in bed, and teaspoonful doses of camphorated tincture of opium at appropriate intervals. The complications of gold administration are more difficult to deal with than those of mercury or bismuth, and apparently involve a higher degree of idiosyncrasy on the part of the patient, and a slower or more difficult elimination of the injurious agent. It would be well to recall that not all enteritis which follows administration of a heavy metal is necessarily due to the drug as such, and careful stool examination would certainly be in order.

POISONING OR MENINGITIS

To the Editor:—Two children, aged 4 and 5 years, from the same family, showed the clincal picture of cerebrospinal meningitis. Spinal puncture was done on one of these children shortly before death, and the fluid showed a marked increase in pressure with slight cloudiness. Both children died within twelve hours after the first symptoms appeared. Is there a poison that would take effect with such suddenness and with the symptoms of meningitis? The laboratory report on the spinal fluid was unsatisfactory, except for the statement that there was contamination, with many bacilli and cocci. Please omit name. M.D., Montana.

Answer.—There is such a thing as a cerebrospinal type of arsenical poisoning which might produce symptoms suggestive of meningitis, followed by speedy death. The convulsant poisons, such as strychnine, brucine, santonine and aspidium, might also produce clinical pictures simulating meningitis. A well marked turbidity of the cerebrospinal fluid would be in favor of an infection rather than of poisoning, as would also the presence of many bacilli and cocci.

DIPHTHERIA IMMUNIZATION

To the Editor:—A child, aged 7 years, was given 10,000 units of diphtheria vaccine because of a membrane appearing on the tonsils. A swab was sent to the laboratory and a return reported negative for evidence of diphtheria. The parents now desire to have the child immunized against diphtheria. Is there any reason why this should not be done? Please omit name. M.D., Kansas.

Answer.—Presumably the child received 10,000 units of diphtheria antitoxin (not vaccine). If the Schick test is positive, indicating that the child is susceptible to diphtheria, there is no reason why it should not be immunized. For immunization, diphtheria toxoid should be used in preference to diphtheria toxin-antitoxin, not only because it is more efficacious but because this child has already had an injection of horse serum.

PATERNITY TESTS

To the Editor:—Will you please tell me the best method, if any, to determine whether a child, 1 month old, of a white mother has a Negro father? Is there any blood test that would assist in making this determination? Kindly omit name. M.D., Georgia.

Answer.—At the age of 1 month, the child of a white mother and a Negro father may not show any obvious, clear-cut Negro characteristics. There is no blood test that will reveal the race of either parent. The most that the available blood test can show is that a given man may have been the father of a given child or that he could not have been the father.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 11. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

American Board of Obstetrics and Gynecology: *Clinical.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

American Board for Ophthalmic Examinations: Boston, Dec. 21. Sec., Dr. Wm. H. Wilder, 122 S. Michigan Blvd., Chicago.

Arizona: Phoenix, Jan. 5-6. Sec., Dr. B. M. Berger, 12 North Central Ave., Phoenix.

California: *Reciprocity.* Los Angeles and San Francisco, Dec. 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Colorado: Denver, Jan. 5. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

District of Columbia: *Basic Science.* Washington, Dec. 29-30. *Regular.* Washington, Jan. 11. Sec., Dr. W. C. Fowler, District Bldg., Washington.

Hawaii: Honolulu, Jan. 11-14. Sec., Dr. James A. Morgan, Room 48, Young Bldg., Honolulu.

Louisiana: New Orleans, Dec. 10-12. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maryland: *Homeopathic.* Dec. 17-18. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

Minnesota: *Basic Science.* Minneapolis, Jan. 5-6. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, Jan. 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Medical Arts Bldg., St. Paul.

Nebraska: *Basic Science.* Lincoln, Jan. 12-13. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

North Dakota: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, Grand Forks.

Oregon: Portland, Jan. 5-7. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

Pennsylvania: Philadelphia, Jan. 5-9. Sec., Mr. Charles D. Koch, Harrisburg.

Rhode Island: Providence, Jan. 7-8. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

South Dakota: The St. Charles Hotel, Pierre, Jan. 19-20. Dir., Dr. H. R. Kenaston, Bonesteel.

Tennessee: Memphis, Dec. 18-19. Sec., Dr. Alfred B. DeLoach, Medical Arts Bldg., Memphis.

Washington: *Basic Science.* Seattle, Jan. 14-15. *Regular.* Seattle, Jan. 18-19. Dir., Mr. Charles Maybury, Olympia.

Wisconsin: *Basic Science.* Milwaukee, Dec. 19. Sec., Prof. Robert N. Bauer, 3414 West Wisconsin Ave., Milwaukee. *Regular.* Madison, Jan. 12-14. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

Oregon July Examination

Dr. C. J. McCusker, secretary, Oregon State Board of Medical Examiners, reports the written examination held at Portland, July 7-9, 1931. The examination covered 11 subjects. An average of 75 per cent was required to pass. Thirty-five candidates were examined, 34 of whom passed and one failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1931)	88.1, 88.4, 89.8
State University of Iowa College of Medicine		(1930)	81.2
University of Michigan Medical School		(1930)	90.4
Creighton University School of Medicine		(1930)	88.1
University of Nebraska College of Medicine		(1931)	83.5
University of Oregon Medical School		(1928)	86, (1930) 87.1, 88.3, 89.1, (1931) 81.2, 81.4, 81.8, 83.1, 83.6, 83.7, 84.4, 85.5, 86.2, 86.5, 86.6, 86.6, 86.7, 87.2, 87.6, 87.6, 88.4, 89.5, 91, 92.1, 93
Osteopaths			81.9, 83.6

FAILED

Osteopath *

Dr. McCusker also reports 8 physicians licensed by reciprocity with other states and 3 physicians licensed by endorsement from July 8 to Sept. 8, 1931. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Denver and Gross College of Medicine, Colorado		(1909)	Colorado
Atlanta School of Medicine, Georgia		(1908)	Georgia
State University of Iowa College of Medicine		(1929)	Iowa
University Medical College of Kansas City, Missouri		(1906)	Kansas
Washington University School of Medicine		(1928)	Missouri
University of Nebraska College of Medicine		(1923)	Nebraska
University of Oregon Medical School		(1929)	California, Indiana

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard University Medical School		(1925)	N. B. M. Ex.
University of Oregon Medical School		(1930, 2)	N. B. M. Ex.

* Reexamined in four subjects. Failed in three.

Nevada Reciprocity Report

Dr. Edward E. Hamer, secretary, Nevada State Board of Medical Examiners, reports 7 physicians licensed by reciprocity with other states and 2 physicians licensed by the endorsement of credentials from June 13 to Aug. 3, 1931. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Cooper Medical College, San Francisco		(1907)	California
Hahnemann Med. Coll. of the Pacific, San Francisco		(1914)	Washington
University of Louisville Medical Department		(1915)	Montana
Baltimore Medical College		(1895)	Penna.
University of Nebraska College of Medicine		(1925)	Nebraska
Memphis Hospital Medical College		(1910)	Mississippi
Licentiate of the Royal College of Physicians and the Royal College of Surgeons of Ireland		(1908)	California

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement of
Columbia University College of Phys. and Surgs.		(1929)	N. B. M. Ex.
University of Toronto Faculty of Medicine		(1927)	N. B. M. Ex.

Book Notices

Motives and Mechanisms of the Mind: An Introduction to Psychopathology and Applied Psychology. By E. Graham Howe, M.B., B.S., D.P.M., Honorary Physician, Tavistock Square Clinic for Functional Nervous Disorders. Cloth. Price, 10s. 6d. Pp. 260. London: The Lancet, Ltd., 1931.

The twelve chapters of this book have appeared in serial form in the *Lancet.* The book is refreshing as a synthesis of the approach toward the patient of that venerable and vanishing figure in medicine, the family physician, and of the modern psychotherapeutist imbued with dynamic concepts of human motivation. Perhaps the key-note of the volume is struck, properly, in the quotation from Ecclesiasticus on the fly-leaf, "He that sinneth before his Maker, let him fall into the hands of the physician." Modestly disclaiming anything "more than a little originality save in certain details of exposition," Dr. Howe presents a clinician's digest of the material of modern psychopathology, gleaned primarily from the field of psychoanalysis. The language is rather pictorial, to borrow a term from the author, and diagrams are used freely in the exposition of his conception of emotional development and to portray such mechanisms as projection, ambivalence, and symptom formation as solution of conflict.

The author makes an earnest attempt to summarize and to classify his material as he proceeds. His method of exposition may be illustrated by a quotation from the summary of his chapter on "Love: The Rôle of the Mother":

> It is the unconscious attempt to find short cuts [for solution of the Oedipus situation] which provides the material of psychopathology, and the symptoms of the disordered mind.
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> The first short cut, described as "fixation compromise," is an attempt to have the best of worlds, which very nearly succeeds, but it is at the expense of dissociation, conflict and phantasy. . . . The second short cut method is by emotional repression, which may give rise to sexual negativism (frigidity), a reversal of the feeling tone from love to hate (as occurs in the misogynist) or to the pseudo-intellectualism which is the psychopathology of the "high-brow." . . . The third short cut is found in the psychology of the prig. . . . This is an example of overcompensation and, as a reaction to the problems of the eternal triangle, may be described as "Messianic identification."

Brief synopses of case histories are used liberally by way of demonstration.

The arrangement of material is confusing. If the book is to be regarded as an introduction to psychopathology, it would appear that clearer definition of the terms and concepts utilized throughout the book should be achieved early. As a simple example, one finds "repression" first referred to on page 29, with the statement that suppression "is not to be confused with repression, which is an unconscious and automatic process." Next "repressed homosexuality" is discussed (page 87). On page 120, reference is made to "repression of the sex factor" in calf-love, and there is a short, incomplete section on repression (page 125). On page 188, repression is discussed in one paragraph as one of six listed defense mechanisms. Unfortunately, a typographic error in which the term suppression is used instead of repression confuses the meaning for the uninitiated. Finally, in a section on conflicting wishes (page 211), "conscious suppression" and "unconscious repression" are cited as the two methods of resolving conflict. An initial adequate discussion of repression (never actually achieved in the book) and of other mechanisms would add much to the clarity of the text, for the student.

The final chapter, "Psychopathology in Relation to Treatment," reveals a healthy skepticism as to efficacy of treatment procedures in vogue among medical men, together with an attempt at constructive criticism. "Perhaps it is inevitable that the practice of psychotherapy should always fall short of the preaching of psychopathology, but it is probable that the next few years may see a great advance in our present method of healing." The author recommends "modified analytic methods" of treatment for the "average patient." "The analytic approach to mental disorders is the aetiological pursuit of causative factors into the past, the childish and the primitive. Any such approach to the problems of the human mind must necessarily be analytic but it is nevertheless not to be confused with psychoanalysis. Psychoanalysis means 'Freud,' and assumes both a specific psychopathology and a definite therapeutic technique. The latter, though invaluable for research work, can never be suitable for ninety-nine per cent of patients who require treatment, because of the time and cost which such treatment involves." The "analytic method" of choice is not very clearly described, but it is suggested that "whatever analytic method we may adopt there are certain common factors which demand consideration, the most important of which are transference, resistance, and free association."

The book is a laudable attempt to present the material of psychopathology to medical men. Uninitiated medical students will doubtless find it confusing. The psychoanalyst will find it incomplete. The practitioner in medicine will find it informative and stimulating, but it would be unfortunate were he to attempt to base his technic of treatment exclusively on the expositions and suggestions offered.

Benzol (Benzene) Poisoning: A New Investigation of the Toxicity of Benzene and Benzene Impurities. By Carey P. McCord, M.D., in collaboration with Nora Cox and Charlotte O'Boyle of the Industrial Health Conservancy Laboratories, Cincinnati, Ohio. Paper. Pp. 78, with 10 illustrations. Cincinnati: Industrial Health Conservancy Laboratories, 1931.

Benzene poisoning has become one of the most serious hazards of modern industry. As pointed out in the preface to this report, conditions other than benzene poisoning simulate it so closely that the diagnosis is frequently confused. Indeed, recently the similarity of benzene poisoning to agranulocytosis has been a special problem. The part played in the production of pathologic conditions by impurities in benzene has not been adequately presented, and the range of symptoms has not been properly recorded. The review of the subject by Dr. McCord presents new evidence, provides a practical review of present knowledge, and affords orientation in this field. It includes much new experimental evidence and is exceedingly practical in its recommendations for treatment and particularly for prevention. Finally, it is supplemented by an excellent bibliography covering the literature on the subject.

Lehrbuch der inneren Medizin. Bände I und II. Von G. v. Bergmann (mit F. Stroebe), R. Doerr, H. Eppinger, usw. Paper. Price, 45 marks. per set of two volumes. Pp. 893, with 136 illustrations. Pp. 782, with 140 illustrations. Berlin: Julius Springer, 1931.

As evident from the list of authors, a galaxy of stars of first and second magnitude among the medical teachers and investigators of Germany, this is a cooperative enterprise yielding a thoroughgoing textbook. Siebeck's introduction alone on the "physician and his function" makes one wish either that this book were in the hands of American medical students or that a similar introduction were found in our textbooks on the practice of medicine. "Not erudition but real help is demanded by the patient." Almost every section of the book commences with a general introduction intended to connect the student's preliminary work in physiology, pathology and bacteriology with the special pathology and therapy of the disease group under discussion. For instance, instead of precipitating the student unceremoniously into the study of "typhoid fever," as is done in so many of our textbooks on medicine, a chapter on the general mechanism of infection (by Doerr) and on general therapy of infection (by Staehelin) precedes. Helpful views, schematic illustrations, photographs of typical patients, and reproductions of characteristic roentgenograms are liberally sprinkled throughout the book, all of which aid the forcefulness of the presentation. Particularly interesting is the chapter by Siebeck on neuroses. One gets the impression that therapy is dealt with in quite a practical manner and that psychotherapy especially is given more adequate consideration than is generally the case in books of this kind; and the final portion of fifty pages on general therapy by Lichtwitz gives the much to be desired finishing touch to the book, the emphasis on treatment at the beginning and the end of the course yielding the impression that therapy is the alpha and omega of medicine. One fault that may be found—if criticism there must be in a book review—is the almost pedantic characteristically German thoroughness displayed in most of the chapters, which would discourage many medical students not accustomed to such heavy mental pabulum. To medical teachers this book may be strongly recommended as an example of the aims of modern German medical instruction.

The Biology of the Amphibia. By G. Kingsley Noble, Ph.D., Curator of Herpetology and Experimental Biology, the American Museum of Natural History. Cloth. Price, $5. Pp. 577, with 175 illustrations. New York and London: McGraw-Hill Book Company, Inc., 1931.

This scholarly treatise is somewhat more than the title might indicate. It is a general discussion of modern biologic problems, Amphibia being used as illustrative material. In interesting and, so far as possible, nontechnical language, Dr. Noble deals with the following problems: the origin of the amphibia, in which one finds illustrated modern phylogenetic methods; development and heredity, including normal and experimental embryology and genetics; the mode of life history, largely a discussion of larval adaptations; speciation and adaptation, a discussion of modes of evolution; sex and secondary sex characters. Then follow a series of chapters on comparative anatomy and physiology, system by system; a chapter on instinct and intelligence; one on the ways of amphibia; one on ecology; one on geographic distribution and economic value; and, finally, one on relationships and classification. The book is so broadly conceived that it might readily be used as a textbook of vertebrate biology for senior college or graduate students. Few important problems of modern biology escape notice. Most interesting are the chapters on speciation and adaptation, sex and secondary characters, the endocrine glands, instinct and intelligence, and relationships and classification. The whole book, however, is of such even excellence that it is difficult to select its best features.

Clinique médicale des enfants: Affections des organes hemolymphopoïétiques et du sang. Par P. Nobécourt, professeur de clinique médicale des enfants à la Faculté de médecine de Paris. Paper. Price, 60 francs. Pp. 432, with 125 illustrations. Paris: Masson & Cie, 1931.

This is one of a series of monographs on various topics in pediatrics which Professor Nobécourt has published at various times since 1921. It consists of a series of lectures or clinics devoted to the blood and blood-forming organs in children. The author discusses clearly and in an interesting manner all the diseases of the blood, first presenting a case in detail and then following with an elaborate discussion of the pathology and differential diagnosis. The book is illustrated with graphs and pictures and comprises practically all the blood dyscrasias in infancy and childhood. Any one who has had the opportunity of attending some of Professor Nobécourt's clinics knows what a kind and able clinician he is.

The Harvey Lectures: Delivered under the Auspices of the Harvey Society of New York, 1929-1930, under the Patronage of the New York Academy of Medicine. By Dr. Ernst P. Pick, Dr. E. K. Marshall, Jr., Dr. E. W. Goodpasture, Dr. Alan M. Chesney, Dr. Philip E. Smith, Dr. Esmond R. Long, Dr. W. J. V. Osterhout, Dr. Rufus Cole and Dr. Graham Lusk. Series XXV. Cloth. Price, $4. Pp. 225, with illustrations. Baltimore: Williams & Wilkins Company, 1931.

The Harvey Lectures for 1929-1930 include the following: The Regulation of Water Metabolism, by Dr. Ernst P. Pick, professor of pharmacology, University of Vienna, Vienna, Austria; The Cardiac Output of Man, by Dr. E. K. Marshall, Jr., professor of physiology, Johns Hopkins School of Medicine, Baltimore; Etiological Problems in the Study of Filtrable Virus Diseases, by Dr. Ernest W. Goodpasture, professor of pathology, Vanderbilt University School of Medicine, Nashville, Tenn.;

Acquired Immunity in Syphilis, by Dr. Alan M. Chesney, associate professor of medicine, Johns Hopkins School of Medicine, Baltimore; Relations of the Activity of the Pituitary and Thyroid Glands, by Dr. Philip E. Smith, professor of anatomy, Columbia University College of Physicians and Surgeons, New York; A Chemical View of the Pathogenesis of Tuberculosis, by Dr. Esmond R. Long, professor of pathology, University of Chicago School of Medicine, Chicago; Electrical Phenomena in the Living Cell, by Dr. Winthrop J. V. Osterhout, member of the Rockefeller Institute for Medical Research, New York; Progress of Medicine During the Past Twenty-Five Years as Exemplified by the Harvey Society Lectures, by Dr. Rufus Cole, director of the Hospital of the Rockefeller Institute, New York, and the Harvey Society by Dr. Graham Lusk, professor of physiology, Cornell University Medical College, New York. The first twenty-five volumes of these lectures have constituted a record of scientific research. The history of the society, as told by Dr. Graham Lusk at the supper in celebration of its twenty-fifth anniversary, is a most interesting medical anecdote which needs to be read in its original form to be appreciated. The society seems to have arisen in the brains of Dr. Graham Lusk, Mrs. Anna Bowman Dodd and Dr. Samuel J. Meltzer. In its formation many distinguished men took part. The first lecture was given in German by Prof. Hans Horst Meyer of Vienna, and the society was introduced to the public by Dr. C. A. Dana. Because it contains an index to the first twenty-five volumes of the society, the present volume is especially valuable.

Die medikamentöse und allgemeine Behandlung der Ohrenkrankheiten. Von Dr. Conrad Stein, Privatdozent an der Universität Wien. Paper. Price, 6.90 marks. Pp. 103. Vienna: Julius Springer, 1931.

Any sound and rational program of therapeusis, even if it relates to special diseases such as those of the ear, as in Dr. Stein's monograph, must rest on a sound knowledge of the causes of those diseases. Furthermore, every physician prescribing treatment must through good judgment and experience (and this includes the experience of others in his own field) be aware of those conditions in which treatment cannot possibly cure but is only palliative. In general, the author has done well. He takes into consideration all forms of therapy and not only those relying on medicaments. There seems to be, as is so generally the case on the continent, a reliance on proprietary remedies without a careful checking up on the part of any official body of the claims of the various manufacturers.

Surgeon of the Seas: The Adventurous Life of Surgeon General Jonathan M. Foltz in the Days of Wooden Ships. Told from His Notes of the Moment by Charles S. Foltz. Cloth. Price, $3.75. Pp. 351, with illustrations. Indianapolis: Bobbs-Merrill Company, 1931.

Jonathan M. Foltz was commissioned assistant surgeon of the navy by President Jackson in 1831. He became surgeon general of the navy under President Grant. His work took him to the coast of Sumatra in pursuit of pirates, and to Mexico and other countries. In the Civil War he was fleet surgeon on the *Farragut* on the Mississippi River. After the war he accompanied Farragut on the cruise around the world. The present volume is constructed by the author from notes and letters. It is an engaging narrative with a special interest for physicians. The personal relationships of Dr. Foltz to Polk and Buchanan and to other notables afford a striking insight into conditions during the administrations of these presidents. The book is provided with interesting illustrations and an adequate index.

Proceedings of the Second International Congress for Sex Research, London, 1930. Edited by A. W. Greenwood. Cloth. Price, 21/-. Pp. 637, with illustrations. Edinburgh: Oliver & Boyd, 1931.

This volume is divided into five parts, dealing with biology, hormones, therapy, contraception and sociology. Practically all the studies here concerned are of scientific value. In the second section, particular attention is paid to the male and the female sex hormone and also to pituitary hormones. Contributions by Aschheim, Koch, Funk, Frank and Moore indicate the basic character of this material. As is usually the case, the least critical portions of the book are those dealing with therapy. Contributions on theelin and menformon are especially uncritical. The articles in this collection are in English, French, German and Italian.

The Black Death and Men of Learning. *By Anna Montgomery Campbell*, Assistant Professor of History, New Jersey College for Women. Cloth. Price, $3. Pp. 210. New York: Columbia University Press, 1931.

The great plague, known as black death, which swept across Europe in the fourteenth century influenced every phase of human life. Several volumes have been published concerning its manifestations. With the scientific knowledge of that day, the plague was believed to be due to some divine manifestation of wrath. The present volume deals with the effects of the plague on science. Chapter 4 concerns particularly its effects in the field of medicine, surgery and hygiene. There is a discussion of the members of the medical faculty who died of the disease and of attempts made through sanitation and hygiene to control the pestilence. Other chapters concern the effects of the plague on universities and schools and on other intellectual fields. A carefully compiled bibliography and index complete this excellent contribution to the history of science.

A System of Bacteriology in Relation to Medicine. Volume IX. By J. A. Arkwright, S. L. Baker, and others. Medical Research Council. Cloth. Price, £1 1s. 0d. Pp. 364, with 86 illustrations. London: His Majesty's Stationery Office, 1931.

This volume completes a system of bacteriology prepared under the auspices of the Bacteriological Committee of the Medical Research Council. It includes sections on the design of bacteriologic laboratories, the microscopic demonstration of bacteria, the preparation of culture mediums, such technical questions as the determination of p_H, the aerobic and anaerobic methods, isolation of single cells, filtration, bacteriophage, serology, anaphylaxis, breeding and care of laboratory animals, vitamin A deficiency, ultraviolet therapy, electricity, and the determination of the value of disinfectants. The book includes also the general index to the nine volumes. The material in this book is on a par with that in the preceding volumes and makes the study complete. No modern school or institution devoted primarily to bacteriologic studies can afford to be without this system.

Confessio Medici. By Stephen Paget, F.R.C.S. Reissued, 1931. Cloth. Price, $2. Pp. 158. New York: Macmillan Company, 1931.

This volume, first published in 1900, is now reprinted because of the demand for these excellent essays. To the physician, the nurse or any worker in the field of health the essays are inspirational. The essay for students establishes a point of view. The essay on Paré is a beautiful example of writing in medical history. The essays on medical practice, its rewards and its dissatisfactions will strike a sympathetic chord in every physician. The final essays on "Retirement" and "The Very End" lead gradually to the epilogue on the privileges of the physician:

"The natural dignity of our work, its unembarrassed kindness, its insight into life, its hold on science—for these privileges, and for all that they bring with them, up and up, high over the top of the tree, the very heavens open, preaching thankfulness. Circle above circle, the reasons for it are established, out of the reach of words."

Gewerbekrankheiten: Klinische Grundlagen der 22 meldepflichtigen Berufskrankheiten. Von Dr. med. Ernst W. Baader, Dozent für Berufskrankheiten an der Universität Berlin. Paper. Price, 9 marks. Pp. 144, with 29 illustrations. Berlin: Urban & Schwarzenberg, 1931.

Most books on occupational diseases are ponderous volumes, with far too many theoretical considerations to meet the needs of the general practitioner in industrial communities, who, however, is the one who sees the greatest number of cases of trade disease. Here is a small, well written booklet, embodying the essentials of medical requirements on the twenty-two occupational diseases compensable in the author's country. According to the preface, "The study of the relation between occupation and sickness is one of the most interesting and promising fields of future medicine, which, unfortunately, up to the present time, has only lightly been touched on by the general practitioner. The necessity for an increased knowledge of toxic work substances is, especially in industrial countries like Germany, most profound." The author ably discusses the practical aspects of the commoner trade diseases. He includes, among others, the clinical conditions arising after exposure to lead and its compounds; mercury and its compounds; arsenic and its compounds; phosphorus; manganese; benzene and its homologues; nitro and amido compounds of the aromatic series;

carbon bisulphide; hydrogen sulphide; carbon monoxide; compressed air; noise and other deafness-producing conditions; silicosis and other forms of pneumonoconiosis; parasitic conditions, such as hookworm infestation; harmful rays; skin diseases, and tropical diseases. This booklet should be translated into English for the use of practitioners in this country. It should serve as a stimulus to authors in this country to prepare simple textbooks covering occupational diseases of particular interest to specific areas, such as a textbook entitled "The Practical Medical Aspects of Occupational Diseases Compensable in New York." More books on occupational diseases are needed. This book is welcomed because of its merit. Others will be welcomed.

The Doctor Explains. By Ralph H. Major. Cloth. Price, $3.50. Pp. 277, with illustrations. New York: Alfred A. Knopf, 1931.

As a contribution to the growing literature for the public on subjects of health, Dr. Ralph Major contributes thirteen excellent essays on topics of major interest. These include:

1. The Physical Examination.
2. Seeing the Invisible.
3. The Rôle of the Blood.
4. Heart Disturbances.
5. The Mysteries of Blood Pressure.
6. The Dangers of Sugar.
7. Body Fuel and Its Consumption.
8. Vitamins and Deficiency Diseases.
9. The Malady of Venus.
10. Hypersensitive People.
11. X-Rays and Other Rays.
12. The Story of Antisepsis.
13. The Conquest of Pain.

Dr. Major writes directly and simply but without extraordinary literary skill. He uses the historical background for developing interest, but from the point of view of the reader who is looking for practical information there is somewhat too much of history in proportion to the amount of usable fact. Thus the chapter on "Body Fuel and Its Consumption" includes about three pages of fact and about fifteen pages of history. For those who want their medical information without too much romance, who want it directly and understandably, Dr. Major has provided a most satisfactory book.

Stereoskopischer Atlas der äusseren Erkrankungen des Auges nach farbigen Photographien: Für Studium und ärztliche Fortbildung. Mit begleitendem Text von Karl Wessely, Professor in München. Lieferung 3. Bild 21-30. Boards. Price, 12 marks. Munich: J. F. Bergmann, 1931.

This outfit includes ten of a series of thirty stereoscopic colored plates of diseases of the eye, with an explanatory text. The plates are beautifully made in colors and are therefore excellent for study by both the specialist and the student.

The Great Physician: A Short Life of Sir William Osler. By Edith Gittings Reid. Cloth. Price, $3.50. Pp. 299, with 10 illustrations. New York: Oxford University Press, 1931.

The author of this volume was a close friend of Dr. Osler and of his family. In preparing her book she has utilized material previously assembled by others and has had the help of other friends and biographers. This book does not substitute for and does not supplement the famous "Life of Osler" by Harvey Cushing. It is rather a simpler and condensed consideration, handsomely prepared and therefore especially suited to the reader who cannot devote the time and the thought that the more comprehensive work requires. The book is beautifully printed and has an excellent index.

Tables of Food Values. By Alice V. Bradley, B S., Supervisor and Instructor of Nutrition and Health Education, State Teachers College, Santa Barbara, California. Cloth. Price, $2. Pp. 128. Peoria, Ill.: Manual Arts Press, 1931.

These tables have been accumulated from computations published in other volumes as well as by the author herself. The physician and the dietitian who prescribe diets for patients with various disorders will find it of the utmost usefulness. The measures are given in quantities ordinarily used. For each food substance, information is given as to weight in grams of protein, fat and carbohydrates; total calories; the amounts of calcium, phosphorus and iron; vitamin content; value as a source of bulk, and the reaction, whether acid or basic.

Medicolegal

Trauma, Eczema and Workmen's Compensation

(Bernard v. City of Lafayette (La.), 132 So. 395)

The plaintiff, a common laborer, in the course of his work was struck on his leg about six inches below the knee by a heavy iron pipe. The only visible evidence of injury at the time seems to have been a scratch about 2½ inches long. He did not believe the injury serious, but on the Sunday night which followed the evening of the accident he was awakened by the effects of the injury and by Monday morning he could hardly stand on his leg. His foreman testified that a day or two after the accident the skin was scratched and red and the leg "kind of swollen," but not in a very bad condition. Three or four days later the plaintiff returned to work. He got wet while at work, by standing in mud and water during the entire day, the water being clear water from the city's water mains. According to his testimony, eight days after the accident pimples and little "heat eruptions" began to grow out around the sore or bruise on his leg. These pimples or sores spread in the course of a few months, covering the hands, legs, and in fact the whole body. The plaintiff brought suit under the workmen's compensation act, attributing the eruption to the accident from which he had suffered. In the trial court, judgment was given in his favor. The defendant, however, appealed, and the court of appeal of Louisiana, first circuit, annulled the judgment and refused the plaintiff's demand (*Bernard* v. *City of Lafayette*, 126 So. 585), saying: "It is not shown that the eczema with which the plaintiff is infected is the natural result of an accident received as alleged, nor that an existing condition in plaintiff's system was thereby activated into virulence." On a rehearing, however, the appellate court reversed that judgment and affirmed the judgment of the district court in favor of the workman.

The physicians who testified in the case had not examined the plaintiff until several months after the accident, when the eczema or rash had covered the body of the plaintiff, and not at a time when they might have made observations that would have enabled them to give expert testimony in reference to the origin of the disease. One of these physicians testified "that the affection of which plaintiff was suffering begins by an infection caused by a germ, and that a person with an abrasion on his leg would be subject to an eczema." Another testified "that he found plaintiff was suffering from an exudative eczema which was most probably caused by some broken or slight abrasion of the skin surface" and in such cases "the cause is not internal but is specific and external." The third medical witness, appointed by the court as an expert, testified "that it is possible for a person with a bruise or scar exposed to mud and water to develop the condition in which he found plaintiff when he made his examination." There was nothing in the testimony of this last witness, said the court, that contradicted the testimony of the other two physicians in reference to the probable origin of the trouble.

It was shown overwhelmingly by the evidence, the appellate court concluded after the rehearing, that prior to the accident the plaintiff was and had always been in fine health, strong, robust, and a reliable, efficient laborer, and, the court added:

> It is singular, and indeed passing strange, that, if the eczema of which he complains had had its origin from some invisible internal cause, arising from nervousness or such like, there had never been any indication that he carried in his system a trouble of that character. Usually, nature gives a warning by some symptom or other of an approaching disease. There should have been, it seems to us, some premonition of the coming trouble. If he really had such a dormant disease in his system, it is again very singular that it should have, immediately after the accident, started to grow from the point of injury and from there spreading over his whole body.
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> It is known today by laymen, and which is not disputed by the physicians who testified in this case, that practically all diseases are caused by microbes, bacteria, or germs. It is also known that, when water, whether from city mains, clear or not, is mixed up with the dirt of ditches or streets, that mud, the result of it, may at any time be saturated with microbes or germs which may bring about different forms of diseases, and exceedingly virulent in character.
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> If plaintiff was not affected with the trouble when he first received the injury, we think the proof shows with sufficient legal certainty that, after his exposure to the mud in laying the pipe, he was infected with microbes or germs which laid concealed there.

Insurance, Life; Presumption Against Suicide.—A policy on the life of the deceased provided that if within one year after its date the insured should die by his own hand or act, whether sane or insane, liability should be limited to the amount of the premiums paid. After the insured's death within the one year period, the insurer claimed that he had died by his own act. The insured had suffered from pellagra for a number of years, but his physician went no further than to say that he thought "at one time that 'he was possibly a little off,'" but that perhaps he would have overlooked that fact if he had not been hunting for it Neighbors and associates testified that they had never noticed anything wrong with his mentality. The insured and his wife were found dead in their home. His wife was on the bed, apparently having been killed by a blow on the head with some blunt instrument. She had died apparently at least eight hours before her husband, as determined by the relative degrees of decomposition of their bodies. The insured was lying on the floor, with his throat cut on both sides and incisions on both wrists and ankles. Lying near him was a large knife, and on the mantlepiece were a small knife and a razor blade, on all of which, as well as on an electric bulb, there was blood. Bloody prints were on the floor, apparently the tracks of some one who had stepped in the blood. There was testimony to the effect that the front door of the premises was unlatched, that it was the custom of the insured to leave the doors unlocked, thus enabling any one to enter the house without difficulty. There was further testimony that a few days before his death he had received $400 in a business transaction, which could not be found or accounted for. Neighbors had heard no disturbance in the house. The furniture in the room was not disarranged and there was no evidence of the ransacking of trunks, chests, bureau drawers, or other receptacles such as might have contained money. In quoting its own previous opinion (*McKendree* v. *Life Insurance Co.,* 112 S. C. 335, 99 S. E. 806, 807) the court said:

> The presumption of fact is that a man will not take his own life. Every action of a man, voluntary and involuntary, tends to preserve his life.

Under the testimony, said the court, it could not be said, as a matter of law, that the presumption against self-destruction had been overcome and the fact of suicide established. As more than one inference could be drawn from the evidence as to how the insured came to his death, the trial judge properly submitted the question to the jury.—*Swofford v. Life Ins. Co. of Virginia (S. C.), 157 S. E. 7.*

Dying Declarations: Mental State of Declarant.—The declarant died as the result of a gunshot wound, inflicted June 18, 1929. The bullet entered "the summit of the head," in a line drawn from the opening of one ear to the opening of the other, directly over the head. The bullet split, one half passing through the skull into the brain and the other passing along the top of the skull, under the scalp, emerging and finding lodgment in the wall near the ceiling. In the course of an operation an incision was made across the front of the head, an inch and a half above the eyebrows. The bone was found "shattered there, cracked loose." The surgeon removed such loose pieces of bone as he thought proper, along with parts of the brain, and extracted from the right lobe of the brain the fragment of the bullet that had lodged there. Dying declarations were taken on July 27 and August 9, and the patient died on August 14, 1929. An autopsy showed the path of the bullet through the right lobe of the brain, touching the left lobe also a little in one place. Posterior to it, there was necrosis. There was evidence of a devitalization of tissues along the course of the bullet.

The wife of the deceased was convicted of murder and appealed to the Supreme Court of Nevada, where her conviction was affirmed (*State v. Watts,* 290 P. 732). On a rehearing, it was urged, among other things, that because of the nature of the wound inflicted on the deceased, and his weakened condition, his brain had deteriorated very materially and his mentality was not sufficient to justify the introduction of the dying declaration made by him; also that there was a strong likelihood and possibility of his laboring under "a hallucination" by reason of the weakened condition of his brain when the dying declarations were made. The testimony of several witnesses showed, however, that at various times between the infliction of the wound and death, the mind of the deceased was clear. The attending physician testified that until about July 23 or July 24 the mentality of his patient was clear; that on or about July 27 and for four or five days prior thereto he was "slipping pretty fast," and between July 27 and August 9 his physical condition was progressively bad, but that his mentality on July 27 and August 9, the days when the dying declarations were made, was quite clear. After having examined the records "with the utmost care and the most minute scrutiny," the Supreme Court of Nevada concluded that the dying declarations were properly admitted in evidence.—*State v. Watts (Nev.), 296 P. 26.*

Optometry: Eyesight Testing Device Supplied for Use by Customer.—In Missouri, persons, firms and corporations who manufacture or deal in eye-glasses or spectacles in stores, shops or other permanently established places of business are not required to be licensed under the optometry act. The defendant sold eye-glasses in his jewelry store in Kansas City. In his store he kept a "self-fitting eye-testing machine," by the use of which customers were supposed to be able to determine, each for himself, the kind of eye-glasses he needed. The state instituted a prosecution for practicing optometry without a license, contending that the use by the defendant, or the furnishing by him for use, of the device described constituted something more than the sale of glasses and was the practice of optometry. The defendant was convicted. Thereupon he appealed to the Supreme Court of Missouri, contending that under the exempting provisions of the optometry practice act he was permitted to facilitate the sale of eye-glasses by the use of the device described. The Supreme Court upheld his contention, reversed the judgment of the trial court, and discharged the defendant. In exempting from the operations of the optometry practice act, persons who deal in eye-glasses or spectacles in stores, shops and other permanently established places of business, said the court, the legislature must be presumed to have intended that such dealers might do the things properly incident to such dealing. The sale of eye-glasses presupposes some test or trial by the customer to determine which glasses best suit him, just as in buying a suit of clothes or a pair of shoes there must be a "trying on" or test to determine the fit. If the dealer permits the customer to take from a tray, put on, and look through, pair after pair of glasses, or if the dealer hands the customer from a tray one pair of glasses after another until the customer finds the pair that suits him, it would hardly be contended that was more than is permissible under the exemption. The testing device furnished by the defendant, said the court, was in effect only the means by which a customer could try various eye-glasses without actually handling them.—*State v. Knapp (Mo.), 33 S. W. (2d) 891.*

Insanity: Prior Mental Condition as Evidence.—Evidence of prior and subsequent mental conditions is admissible to determine a person's mental condition at the precise time of the act in issue. A witness who has had opportunity and occasion to know and observe a person whose sanity is impeached may testify to facts and may express an opinion based on his knowledge and observation as to the mental condition of such person. While evidence of previous insanity of a temporary character may not raise a presumption of continued insanity, it may be considered by the jury in connection with other evidence in determining an issue as to a person's mental capacity.—*Mangum v. Brown (N. C.), 156 S. E. 535.*

Society Proceedings

COMING MEETINGS

Philippine Islands Medical Association, Manila. December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., December 8-11. Dr. Robert L. Payne, 142 York Street, Norfolk, Va., Secretary.

Western Surgical Association, Denver, December 4-5. Dr. Frank R. Teachenor, 306 East Twelfth Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

15: 2435-3117 (Oct.) 1931

*Occurrence of Malignancy in Radioactive Persons. H. S. Martland, Newark, N. J.—p. 2435.
*Prognosis of Gynecologic Cancer. H. C. Taylor, Jr., New York.—p. 2517.
Cancer of Thyroid Gland. H. M. Clute and S. Warren, Boston.—p. 2563.
Giant Intracanalicular Fibro-Adenomyxoma of Breast: So-Called Cystosarcoma Phyllodes Mammae of Johannes Müller. B. J. Lee and G T. Pack, New York.—p. 2583.
Comparison of Conditions Associated with Breast Cancer in Great Britain and America. J. M. Wainwright, Scranton, Pa.—p. 2610.
*Malignancy of Testis, with Especial Reference to Undescended Testis: Seventy-Six Cases (Seventeen Cases Previously Reported). C. E. Rea, Minneapolis.—p. 2646.
*Investigation of Physical Nature of Cancer Cells. G. W. Crile, Maria Telkes and Amy F. Rowland, Cleveland.—p. 2659.
*Interrelations Between Histologic Structure and Blood Chemical Findings in Cancer. W. C. Hueper, G. E. Woodward and E. G. Fry, Philadelphia.—p. 2666.
*Relation of Heredity to Cancer Occurrence as Shown in Strain 621: Studies in Incidence and Inheritability of Spontaneous Tumors in Mice. Maud Slye, Chicago.—p. 2675.
*Effect of Injection of Heated Tumor Tissues on Resistance to Tumor Implantation. K. Sugiura and S. R. Benedict, New York.—p. 2727.
Is There a Specific Bacterial Irritant to Four Sites of Carcinoma? E. W. Saunders and Mary A. Cooper, New York.—p. 2745.
*On Relation Between Parathyroid Hormone and Growth of Rat Carcinoma T. S. Paik, Seoul, Korea.—p. 2756.
Recent Biochemical Research in Cancer with Especial Reference to Metabolism of Normal and Malignant Cell. E. C. Dodds.—p. 2765.
Rôle of Heredity in Determining the Incidence and Growth of Cancer. C. C. Little, Bar Harbor, Maine.—p. 2780.
Action of Tumor Extracts on Spread of Experimental Vaccinia of Rabbit. F. Duran-Reynals and F. W. Stewart, New York.—p. 2790.

Occurrence of Malignant Conditions in Radioactive Persons.—Martland calls attention to certain data that he has accumulated in the study of radium dial painters which may have an important bearing on future research in the etiology of cancer and of certain obscure blood diseases. His studies indicate that it is important to have proper medical supervision over the use of radium and roentgen rays for therapeutic purposes, and governmental control over industries and occupations in which exposure to radioactive substances takes place. It would seem that the use of radiations for therapeutic purposes should be confined to hospitals and institutions specializing in and competent to handle such treatments, and that the indiscriminate use of radium and roentgen rays should be in some way controlled. All occupations in which the handling of radioactive substances occurs should be under strict governmental control and supervision. Rules and regulations covering the dangers of exposure should be outlined. Technical methods should be devised in specific industries so that exposure is reduced to a minimum. If in a certain industry the exposure cannot be reduced to a safety minimum, the procedure in use should be given up for some other method; if this is not possible, the industry should be discontinued. In this respect it is interesting to note that the U. S. Public Health Survey, which shows that the habit of licking brushes in the watch dial industry has been stopped and that various mechanical methods have been devised to apply luminous paint, states that, in spite of the utmost care and precautions against undue exposure, girls who work under the new methods still become radioactive and show an average of 0.5 microgram of radioactive substance in their bodies. It is a question whether under these conditions one should be satisfied to regard the industry as a safe one. The foregoing arguments apply also to the sale of radioactive waters, emanators, activators, and so on. The sale of all such commodities should be stopped until it is definitely established that they are harmless. The indiscriminate sale of these waters and apparatus by laymen and quacks is criminal. Their therapeutic effects are nil if one excludes the psychic effects produced on the patient. The human race would not suffer by eliminating them. These studies, aside from drawing attention to the occurrence of malignant tumors in radioactive persons and giving another cause for osteogenic sarcoma, may be of importance in the experimental study of cancer. It may be possible to show new methods by which malignant tumors may be produced in animals. Recently, in Germany, bone sarcoma has been produced in the rabbit by means of irradiation from implanted radium. The question arises, May not other forms of malignancy depend on the presence in the human body of increased amounts of radioactivity too small, perhaps, to be detected by the present methods? This question will be harder to answer than appears at first thought. While the amounts of radioactive substances in the dial painters are extremely small, being measured only with great difficulty, they must be much greater than one would ever expect the normal individual to acquire. Unfortunately, at the present time, it is impossible to estimate much smaller quantities. A great deal less might produce malignant changes over a longer period of time. Some have thought that 10 micrograms of radium deposited in the tissues of the body is probably just within the limits of tolerance of the average person. From the author's experience it is impossible to state what is the greatest amount of radioactivity the body can safely carry. He believes that less than 0.5 microgram is dangerous. Theoretically the exposure to or the use of any radioactive substance that will increase the normal radioactivity of the body is dangerous. At the present time he can only suggest that some other types of malignant tumors may be caused by minute amounts of radioactive substances to which the human body, in its normal environment, is exposed.

Prognosis of Gynecologic Cancer.—Taylor presents a clinical and pathologic study of 739 cases of gynecologic cancer observed at the Roosevelt Hospital from 1910 through 1930. Cancer of the cervix in the only two reportable years (1924-1925) in which radium was used practically exclusively was curable for at least five years in 18 per cent of all cases. The amount of irradiation in these years was inadequate. An increase in dosage, a better method of application, and the addition of high voltage roentgen therapy will, it is hoped, lead to improved results for the years after 1927. In the years 1921-1923, however, when the plan of treatment for favorable cases was preoperative radium and later radical hysterectomy, the absolute five-year cure rate was 29.7 per cent. Carcinoma of the corpus gave an absolute cure rate of 25.8 per cent, a disappointing figure, owing in part to a large number of lost cases. Among the traced cases in which operation was performed the results approached the average reported by other institutions. The high mortality, especially in women over 60, leads to the suggestion that irradiation should be substituted for surgery at least in this group. Carcinoma of the ovary yielded only 6.9 per cent of cures, a very low figure, owing perhaps entirely to a review of the sections and the exclusion of all cures in cases possibly classifiable as papillary cystadenoma. The successes were all due to factors uncontrollable by the surgeon; namely, the restriction of the growth at the time of operation to an unruptured cyst. Roentgen therapy has not produced cures in otherwise incurable cases in the Roosevelt clinic but will be continued in view of favorable outside reports. Carcinoma of the vulva yielded 21.1 per cent of cures, but it is probable that this figure might have been better had several of the patients in the early cases not been at first treated by a too conservative operation. Carcinoma of the vagina has recently been treated by radium, which has led to some preliminary encouraging results. Sarcomas of the uterus and ovary offer difficulties in histologic diagnosis which may largely affect the reported percentage of cures. From a more practical point of view a failure on the part of either surgeon or pathologist to differentiate myosarcoma from a benign fibromyoma may jeopardize the individual patient's chances. A few rarer tumors, carcinoma of the tube, chorionepithelioma, and sarcoma of the rectovaginal septum are reported. An apparent cure is noted in a case of the disease last cited. Advanced peritoneal malignant tumors of undetermined origin, usually regarded as ovarian, are separately considered. They form a fairly large and quite hopeless group. A careful review of the pathologic sections of cases of cancer of the cervix has led to little corroboration of the finding of several writers that histologic form bears a relation to prognosis as the result of variations in malignancy or in radiosensitivity. There was a very slight indication of such a relationship in carcinoma of the corpus. The correct separation of corpus adenocarcinoma from endometrial hyperplasia, of papillary cystadenocarcinoma of the ovary from papillary cystadenoma, of myosarcoma from fibromyoma, and of fibrosarcoma from fibroma of the ovary is, however, of vital importance in prognosis.

Malignant Tumors of Testis.—Rea states that while malignant tumors of the testis are uncommon, they occur relatively much more frequently in undescended than in descended testes, and the danger of malignant tumor in the abdominal is just as great as in the inguinal testis. The present forms of treatment are unsatisfactory. The proportion of four-year survivals after orchidectomy is but 13.2 per cent. When suitable irradiation is added to orchidectomy, this percentage is materially increased in patients without obvious metastases. Approximately 7 per cent of those with obvious metastases are saved, at least temporarily, by irradiation. The value of Coley's serum in conjunction with other methods requires further study. The best results from any single method in the operable cases follow the radical operation (block excision of the testis, spermatic cord, and regional lymph nodes). Judging by the literature, the author believes that results surpassing those yet attained should attend the combination of radical surgery and irradiation. Education of the public to seek competent medical advice early is the only practical solution of the problem of malignant tumors of the testis at present. Biopsy and frozen section diagnosis should be resorted to, with the patient prepared for immediate radical surgery, in early doubtful cases. The undescended testis should be placed in the scrotum, where it can be observed, in all cases. This proving impracticable, it should be excised, provided the opposite organ is normally placed or placeable.

Physical Nature of Cancer Cells.—In their investigation of the physical nature of cancer cells, Crile and his associates have sought evidence in support of the widely held theory that cancer owes its development to some alteration in the cells of the tissues as the result of some mechanical, physical or chemical factor. To this end they have been endeavoring to discover some physical principle which might account for the conversion of normal cells into cancer cells as the result of single or repeated injury; for cancer cells do not originate in uninjured, unchanged tissues, but in tissues which have been subjected to chronic irritation. It is clear that the cancer cell must owe its formation to the operation of existing laws of growth in the host, for cancer originates and lives only in the living. The problem, therefore, is concerned with the struggle for survival between the cancer cell and the normal cell; and the logical point of attack would seem to be the characteristics of the normal cell. The authors have therefore been trying to discover what physical differences might account for the conversion of differentiated into undifferentiated cells; of cells whose energy is used primarily for function into cells whose energy is used primarily for growth. They have found that as compared with neighboring cells cancer cells appear to have a greater conductivity and capacity. In rat cancer the injury current of a cancer is opposite to that of the neighboring tissues and organs. The electric potential may be an index controlling the treatment. By ionization the sign of charge of a cancer cell may be changed and the change maintained. It is suggested that after cancer tissue has been partly reduced by ionization it may be completely reduced by radiation at a lesser dosage than that used clinically.

Blood Chemical Examination in Cancer.—Hueper and his associates correlated the malignancy indexes and the blood p_H values in thirty-four cases of carcinoma. A preponderance of histologically highly malignant tumors was found in patients with an alkalosis, while the tumors of histologically low malignancy predominated in patients with a normal blood p_H. The alkalosis of the blood in cancer patients varies not only with the extent of the disease but also with the degree of malignancy and maturity of the tumor. The degree of cellular irregularity of cancerous tissue is increased in patients with an alkaline p_H of the blood as compared with patients with a blood p_H in the normal range. In about one third of the cancer patients with a hyperglycemia (which was present in 78.3 per cent of the cases) a high number of mitoses was found, while this phenomenon was absent in cancer patients with a normal blood sugar.

Relation of Heredity to Occurrence of Cancer.—Slye presents the record of an entire single strain of mice derived from the mating of a cancerous female and noncancerous male, and bred through three generations. The report includes all totals regarding the occurrence of malignant diseases and the ages of the mice. The entire strain, including the parents, consisted of 207 individuals, of which 115 were females and 92 were males. Of these, 23 were cancerous, or slightly over 11 per cent of the strain. The matings in this strain were practically typical of human matings, and the 11 per cent of neoplasms is a close approximation to the percentage of occurrence of neoplasms in man. The types of neoplasm occurring in this strain were carcinoma of the mammary gland, squamous-cell carcinoma of the skin, carcinoma of the lung, and leukemic diseases. In this strain two external factors were noted in connection with the two predominating types of cancer: (1) chronic dermatitis of the muzzle and eyelid skin, in both sexes; (2) a marked tendency to the formation of cysts in the inguinal mammary gland. Every case of skin cancer and every precancerous condition of the skin arose on a chronic dermatitis, frequently of long duration; and some of the mammary gland carcinomas seem to have arisen in mammary gland cysts. Other characteristics noted in the strain are the prevalence of pneumonia and nephritis, a tendency to emaciation in all of middle and late life, and a tendency to longevity. The average age at which cancer was noted in this strain was ten months and one day. The average age at death of the cancerous mice was 1 year, 1 month, 12 days. The average age at death of the noncancerous mice was 1 year, 3 months, 29 days. Thus, not only did the noncancerous mice of any given generation live well beyond the age at which cancer occurred in the cancerous mice, but their noncancerous offspring also lived long enough to confirm the classification of both themselves and their parents as noncancerous individuals. The twenty-three cancers were distributed as follows through the four generations studied: (1) In the parent generation, one, the parent female of the strain; (2) in the first generation, consisting of nine individuals, none were cancerous; (3) in the second generation of thirty-six individuals, nine were cancerous, and (4) in the third generation of 160 individuals, thirteen were cancerous. All the figures reported are a close approximation to the classic expectation for cancer as a mendelian recessive, and the classification of every mouse is confirmed by its progeny.

Effect of Injection of Heated Tumor Tissues.—Sugiura and Benedict placed fragments of fresh tumor tissues in a Locke-Ringer solution at p_H 7.0 and submitted them to various temperatures for varying periods in order to obtain the minimum lethal time for a given temperature. Inoculation of heat-inactivated Flexner-Jobling rat carcinoma cells previous to implantation of fresh, healthy homologous tumor cells did not prevent the growth of the latter. Injection of heat-inactivated Sugiura rat sarcoma cells produced slight but definite protection against the subsequent growth of new sarcoma cells in the treated animals. Injection of a fragment or emulsion of Rous chicken sarcoma in which the causative agent had been attenuated at a temperature between 45 and 60 C. with a minimum time of exposure conferred marked resistance to the subsequent implantation of the homologous tumor. The immunizing property of the attenuated chicken sarcoma was abolished by prolonged heating or heating the tumor tissue at a much higher temperature. Previous injection with the heat-inactivated Rous chicken sarcoma brought about prolongation of life in the tumor-bearing chickens, subsequently inoculated with viable tumor. Single or repeated subcutaneous or intramuscular inoculations of the heat-inactivated Flexner-Jobling rat carcinoma, Sugiura rat sarcoma, or Rous chicken sarcoma did not have any effect in checking the growth of firmly established tumors in animals.

Parathyroid Hormone and Rat Carcinoma.—Paik describes experiments on rats in which he demonstrated that there is a close relationship between the growth of transplantable rat carcinoma and the internal secretion of the parathyroid. The internal secretion of the parathyroid stimulates the development of rat carcinoma, but decrease of its internal secretion *interferes with development of such a carcinoma.*

American Journal of Medical Sciences, Philadelphia

182: 441-596 (Oct.) 1931

Problems of Present-Day Gastro-Enterology. W. C. Alvarez, Rochester, Minn.—p. 441.
Clinical Observations of Immunizing Value of "Natural Bacterial Antigens": Study No. 1. Pneumococci. D. C. Sutton, A. I. Kendall and A. Rosenblum, Chicago.—p. 454.
Diagnostic Program in Food Allergy. W. T. Vaughan, Richmond, Va. —p. 459.
Sydenham's Chorea. R. W. Waggoner, Ann Arbor, Mich.—p. 467.
Creatinuria in Hyperthyroidism. E. J. Kepler and W. M. Boothby, Rochester, Minn.—p. 476.
Hereditary and Familial Diabetes Mellitus. I. S. Wright, New York. —p. 484.
Interpretation of Flarimeter Tests. L. F. MacKenzie, P. V. Wells, E. G. Dewis and L. S. Ylvisaker, Newark, N. J.—p. 497.
Effect of. Blood Transfusions on Bone-Marrow Activity as Indicated by Reticulocyte Count. C. Reich, New York.—p. 513.
Primary Hypochromic Anemia (Erythronormoblastic Anemia): New Type of Idiopathic Anemia. W. Dameshek, Boston.—p. 520.
Idiopathic Hypochromemia. W. S. Mills, Montreal.—p. 554.

American Journal of Psychiatry, Baltimore

11: 215-400 (Sept.) 1931

Basic Symptoms of Schizophrenia. M. Levin, Philadelphia.—p. 215.
Mental Hygiene Research. C. M. Hincks, Toronto.—p. 237.
Learning Ability of Schizophrenics. G. E. Gardner, Waverly, Mass. —p. 247.
Encephalitic Sequelae and Their Treatment. S. S. Cottrell, Harding, Mass.—p. 253.
*Alzheimer's Disease: Its Occurrence on Basis of Variety of Etiologic Factors. K. Lowenberg, Ann Arbor, Mich., and D. Rothschild, Foxborough, Mass.—p. 269.
*Sex-Linked Inheritance in Mental Deficiency. A. J. Rosanoff, Rosemead, Calif.—p. 289.
Statistical Study of Hallucinations in Manic-Depressive Psychoses. K. M. Bowman and Alice F. Raymond, Boston.—p. 299.
Association in Normal and Subnormal Adolescents. Edna Willis McElwee, New York.—p. 311.
Case of Ludwig Lewisohn: A Contribution to Psychology of Creative Genius. L. J. Bragman, Syracuse, N. Y.—p. 319.

Alzheimer's Disease.—Lowenberg and Rothschild report two cases of Alzheimer's disease. Although atypical in some respects, clinically and pathologically there were adequate grounds for classifying them with the Alzheimer group. In the first case the Alzheimer disease picture was superimposed on a chronic syphilitic meningitis in a feebleminded person. In addition, the brain showed cerebral hemiatrophy. This was thought to represent the anatomic substratum of the feeblemindedness. In the second case there were certain clinical features which seemed entirely inconsistent with a presenile disorder. The etiologic factor in this case was regarded as toxic in nature. These observations, taken in conjunction with others in the literature, lead to the conclusion that Alzheimer's disease is really a syndrome with a multiplicity of etiologic factors. The majority of the cases must still be brought into relation with atypical senile processes. However, there is a smaller group in which the causative agents appear to be toxic or organic diseases that are clearly independent of senility or allied conditions.

Sex-Linked Inheritance in Mental Deficiency.—A little over a year ago, Rosanoff undertook a study of mental disorders in twins. In the course of that study he sought out in state hospitals, institutions for the mentally deficient, prisons, reformatories and other such institutions patients or inmates who had a twin brother or sister living somewhere and accessible to investigation. In the group of mental deficiency cases he has thus far accumulated records of ninety-five pairs of twins. One or both in each pair had mental deficiency. The main purpose of the study was to compare the observations in monozygotic and dizygotic twins. Among the thirty-five pairs of monozygotic twins, both twins were found to be affected in thirty-three instances; and only one was affected, the other having normal intelligence, in two instances. Among the sixty pairs of dizygotic twins, both twins were affected in thirty-two instances and only one was affected in twenty-eight instances. In the entire group there was a greater number of cases of mental deficiency in the male sex than in the female sex: normal subjects were, on the contrary, fewer in the male sex than in the female sex. The greater frequency of mental deficiency in the male than in the female sex was most strikingly shown in opposite-sex twins. Among twenty-seven pairs of opposite-sex twins, both had mental deficiency in eleven instances, the male alone in eleven instances, and the female alone in five instances. It appears in a consistent way that girls make a slightly better showing than boys in intelligence tests and in scholastic record. These facts suggest that gene factors of intelligence may in some cases be carried in the X-chromosomes and not only in the autosomes; or, in other words, that there may be a sex-linked factor in some cases in the genetic history of mental deficiency and of general intelligence. In order to make the simplest provision in biologic symbols and formulas for a sex-linked factor, it is necessary to assume the existence of six possible types of males, nine types of females, and fifty-four types of mating. Theoretically, from thirty-eight of these types of mating only normal offspring can result. The mentally deficient offspring that may result from eight other types of mating may be expected to be equally distributed in the two sexes, as far as the possible influence of any sex-linked factor is concerned. Only male mentally deficient offspring can result from the remaining eight types of mating. When both parents are mentally deficient or when the father alone is mentally deficient, an equal distribution of mental deficiency in the two sexes of offspring may be expected. When both parents are normal or when the mother alone is mentally deficient, mentally deficient offspring of both sexes may result; but their distribution will not be equal in the two sexes, for the cases in which a sex-linked factor may be operative will be included in this part of the material. Here, according to theory, any relative excess of mental deficiency in the male sex must be, at least in part, attributed to a sex-linked factor. A reinvestigation of a part of Goddard's published material, selected by reason of relevance to the questions raised by the author's study, bears out the assumption of a sex-linked factor in the genetic history of mental deficiency. The general relative excess of mental deficiency in the male sex is, however, greater than can be accounted for by this factor; to some extent it must be attributed to some other factor or factors.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

12: 581-638 (Oct.) 1931

*Skin and Radiation. A. Bachem and C. I. Reed, Chicago.—p. 581.
Comparative Value of Various Treatments of Osteomyelitis with Especial Reference to Aluminum-Postassium-Nitrate Method. M. Thorek, Chicago.—p. 591.
Osteomyelitis. L. S. Brookhart, Cleveland.—p. 598.
Diagnosis and Treatment of Acute and Chronic Bone Abscess. F. W. Carruthers, Little Rock, Ark.—p. 602.
High Body Temperature in Relation to Wassermann-Fast Neurosyphilis. L. D. Cady and F. H. Ewerhardt, St. Louis.—p. 605.
*Diathermy in Postoperative Lung Conditions. N. J. Seybold, Toledo. —p. 610.
Physical Therapy and Physician's Obligations. H. M. F. Behneman, San Francisco.—p. 615.

Skin and Radiation.—Bachem and Reed describe experiments from which they draw the following conclusions: Visible (and near infra-red) rays are strongly absorbed by the blood of the corium and subcutaneous layers, with direct effects on the blood to be expected. The heating effect must be rather mild on account of the small absorption in the epidermis and the strong convection by the blood stream. The far infra-red has little penetrating power. Most of it is absorbed in the epidermis. The produced heat is slowly conducted down to the deeper layers and up to the surface and convected away by the blood stream and air circulation. Overexposure of the germinal layer may lead directly to blistering. The ultraviolet exhibits greater variations than the other parts of the spectrum. At 280 micromicrons the absorption in the corneum (and granulosum) is pronounced. The great antirachitic effect of this wavelength must occur in or above these layers. At both sides, 300 and 250 micromicrons, the penetration is greater, more radiation reaching the malpighian layer and the corium. These observations, together with those of Hausser and Vahle, indicate that erythema production occurs in the germinal layer (or the corium) in the shadow of the upper layers. The stratum corneum (plus granulosum) must play an important part in the protection of these sensitive layers against too strong irradiation. From 250 micromicrons on, the absorption of the horny layers increases rapidly. Near 200 micromicrons the absorption is so complete as to prevent any radiation from reaching the living layers of the skin. These observations prompt some speculation as to the rôle of the skin in the systemic effects of irradiation. The fact that certain effects of a local application are systemic can be explained either by assuming that rays penetrate into the blood stream and produce changes that are reflected in systemic reactions, or that nerve endings in the skin are stimulated, producing reflex changes, or that some substance is liberated in the skin and taken up by the blood and lymph, to be distributed to other organs or tissues.

Diathermy in Postoperative Lung Conditions.—In the diathermic treatment of postoperative lung conditions, Seybold uses large electrodes that cover the whole chest. The electrodes are made of mesh and sewed on white felt 1 inch thick. This mesh is 1 inch smaller on all sides than the piece of felt. Different sizes are kept so as to fit large or small chests. They are placed anteriorly and posteriorly, or occasionally they may be placed laterally in some pleurisy cases. No lubricant is used, just ordinary warm tap water. Treatments are given for thirty-minute periods or longer. They are given every twelve hours, or oftener as indicated. The milliamperage averages from 1,500 to 3,000 with a frequency of 1,000,000. The high voltage tap is always used in the author's cases. Any medication that is requested can always be given, as the diathermy does not interfere.

Canadian Public Health Journal, Toronto

22: 485-540 (Oct) 1931

Difficulties and Problems in Program for Prevention of Mental Disease. A. T. Mathers, Winnipeg.—p. 485.
Immunization Against Diphtheria in County of Nicolet, P. Q. J. E. Sylvestre, Roxton Falls, Que.—p. 495.
Influence of Mortality Trends of Certain Diseases on Life Expectancy. J. M. Livingston, Waterloo, Ont.—p. 497.
New Lamps for Old. R. B. Jenkins, Edmonton, Alta —p. 501.
Cutaneous Myiasis in Canada. E. M. Walker, Toronto —p. 504.
Peter Ludwig Panum 1820-1885 Pioneer in Epidemiology of Measles. J. L. Little, Toronto—p. 509.
Tribute to Wyatt Galt Johnston, M D. M. P. Ravenel, Columbia, Mo. —p. 517.

Florida Medical Association Journal, Jacksonville

28: 155-202 (Oct.) 1931

Conservative Renal Surgery. R. J. Holmes and M M Coplan, Miami. —p. 163.
Enlarged State Board of Health Program. H. Hanson, Jacksonville. —p. 168.
Endocervicitis. W M. Rowlett, Tampa.—p. 172.
Focal Infections, Resulting Morbidity and Treatment for Same. T. M. Rivers, Kissimmee —p. 175.
Witch Doctors and Their Practices. D. W. McMillan, Pensacola.—p. 179.
Granuloma Inguinale. F. E. Daves, Chattahoochee.—p. 184.

Illinois Medical Journal, Chicago

60: 269-352 (Oct.) 1931

Mental Hygiene in the Family. F. P. Norbury, Jacksonville.—p. 281.
Multiple Myeloma. C. D. Center and T. J. Merar, Quincy.—p. 286.
Early Recognition of Gas Bacillus Infection by Roentgen Ray. H. Olin, Chicago.—p. 289.
Hemolytic Streptococcus Bacteremia with Endocarditis and Arthritis, Following Scarlet Fever. M. Kern, Chicago.—p. 298.
Secondary Anemia. R. F. Herndon, Springfield.—p. 302.
Kirchner Pin in Fractures of Long Bones. A. H Hauber, Chicago.—p. 306.
Dupuytren's Abscess. J. E. Bellas, Peoria.—p. 308.
Challenge of Syphilis. A. Hall, Springfield.—p. 311.
Syphilid of Nervous System. A. B. Magnus, Chicago —p. 315.
Coronary Thrombosis. W. S. Priest, Chicago.—p. 319.
Scarlet Fever Immunity and Streptococcal Puerperal Infection. G. E. Hudson, Chicago.—p. 328.
Therapeutic Use of Oxygen and Carbon Dioxide. H. P. Miller, Rock Island.—p. 331.
Use of Bacteriophage in Staphylococcic Infections. A. A. Janson and R. L. Larsen, Evanston.—p. 334.
Craniocerebral Injuries. J. D. Kirshbaum, Chicago.—p. 338.
Fever Treatment of Paresis by Means of Diathermy Current and Electric Blanket. S. D. Wilgus and Leah Lurie, Elgin.—p. 341.
Fractures About Elbow Joint. H. D. Grossman, Chicago.—p. 344.
Relationship Between Mental Deficiency and Fields of General Medicine. *G. B. Smith, Godfrey.—p. 346.*

Johns Hopkins Hospital Bulletin, Baltimore

49: 203-270 (Oct.) 1931

Hemorrhagic Bright's Disease: I. Natural History. T. Addis, San Francisco.—p. 203.
*Study of Late Effects of Toxemias of Pregnancy (Excluding Vomiting and Eclampsia). C. H. Peckham and M. L. Stout, Baltimore.—p. 225.
*Treatment of Anemia of Infancy with *Iron and Copper. H. Josephs,* Baltimore.—p. 246.
Circulation of the Aqueous. J. S. Friedenwald and H. F. Pierce, Baltimore.—p. 259.

Late Effects of Toxemias of Pregnancy.—Of a series of 545 consecutive deliveries of toxemic patients, excluding eclampsia and vomiting, 66⅔ per cent of the patients were reexamined by Peckham and Stout from four months to four years after delivery, and at that time 40 per cent of them were found to have a definite chronic nephritis. The differential diagnosis between nephritic and nonnephritic toxemia frequently cannot be made during pregnancy or the puerperium, and even at six weeks after delivery the diagnosis is sometimes incorrect. Nephritis is seen more frequently in the older age groups and among multiparas. Two thirds of the nonnephritic toxemias occur in women under 25, and a similar proportion are primiparas. A marked hypertension (systolic 200 mm. or more and diastolic 150 mm. or over) is more frequently associated with nephritis, although an occasional case of preeclampsia is seen with this reading. Albuminuria and its amount is not of prognostic import. The presence or absence of casts in the urine likewise does not give differential information. The phenolsulphonphthalein and Mosenthal renal function tests give almost identical results in the two types of cases. Edema occurs in the same proportion of cases in the two groups. Toxemia patients in general seem to have shorter and easier labors than normal; however, the fetal mortality is high, particularly in nephritis. The blood pressure is higher on discharge in the nephritic type. However, many women who have nephritis leave the hospital with a normal blood pressure, while about a fifth of the women later returning normal still have hypertension. Albuminuria on discharge is noted in relatively the same proportion of cases, nephritic or nonnephritic. Even six weeks after delivery many normal women still have hypertension and albuminuria, while a small number of nephritic patients appear normal in these respects. Only 7 per cent of nonnephritic patients show hypertension or albuminuria prior to the seventh month of pregnancy, whereas over half the nephritic patients were known to be abnormal at that time. However, almost a fifth of the women who ultimately were diagnosed as nephritic were known to be normal until after the seventh month. This would seem to indicate that chronic renal damage may be a result of the toxemic process. If vomiting and eclampsia are excluded, one of every three women seen with a toxemia of pregnancy will ultimately be found to have nephritis. Except in perfectly obvious cases it seems better to defer the final diagnosis until four months after delivery, although a diagnosis intelligently made at the time of discharge from the hospital is incorrect in only one case in nine.

Treatment of Anemia of Infancy. — Josephs treated a series of anemic infants with iron, and iron with copper supplement. The results were considered statistically through the construction of a curve corresponding to the average rise in hemoglobin after iron alone. It was found that copper accelerated the rise in hemoglobin when given in addition to iron. This acceleration was most evident when the hemoglobin was above about 50 per cent, for above this point the hemoglobin curves from patients on iron alone tended somewhat to flatten out, whereas those from patients on iron and copper continued to rise steeply up to about 70 per cent. In this series it made no difference in the speed of recovery whether the child was on a diet of milk alone or whether vegetables or eggs were included, and medicinal iron was found to be far superior to food iron in causing a rapid recovery. The effect of the iron is first on the reticulocytes, then on the hemoglobin, and there usually exists a latent period before the effect on the hemoglobin is manifested by a rise. The end of the latent period appears to coincide with a sufficient rise in reticulocytes. Copper appears to accelerate hemoglobin formation and does not have an effect on the reticulocytes.

Journal of Bacteriology, Baltimore

22: 239-307 (Oct.) 1931

Behavior of Acid-Fast Bacteria in Oil and Water Systems. G. B. Reed and Christine E. Rice, Kingston, Canada.—p. 239.
Gum Production by Azotobacter Chroococcum of Beijerinck and Its Composition. W. B. Hamilton, Quebec, Canada.—p. 249.
Studies on Electrical Charge of Bacteriophage. C. E. Clifton and R. R. Madison, San Francisco.—p. 255.
Five Cases of Infection of Urinary Tract Due to a Member of the Group of Bacilli Named After Morgan. E. Waaler, Oslo.—p. 261.
Streptococci Which Grow at High Temperatures. J. M. Sherman and Pauline Stark, Ithaca, N. Y.—p. 275.
Value of Serologic Tests for Identification of Pseudomonas Malvacearum. E. S. Horgan, Khartoum.—p. 287.
Resistance of Dehydrated Pneumococci to Chemicals and Heat. F. P. Gay, K. N. Atkins and Margaret Holden, New York.—p. 295.

Journal of Bone and Joint Surgery, Boston

13: 669-924 (Oct.) 1931

*Arthroscopy or Direct Visualization of Joints: An Experimental Cadaver Study. M. S. Burman, New York.—p. 669.
Myeloscopy or Direct Visualization of Spinal Canal and Its Contents. M. S. Burman, New York.—p. 695.
Prophylactic Treatment of Free Callus in Articular Trauma of Children. E. Roviralta, Barcelona, Spain.—p. 697.
First Aid for Fractures: Methods and Equipment for Treatment of All Fractures at Site of Accident and on Ambulance During Transportation to Hospital. R. T. Findlay, New York.—p. 701.
*Separate Neural Arch. T. A. Willis, Cleveland.—p. 709.
Arthrodesis Acromiohumeralis Osteoplastica. O. E. Schulz, Prague, Czechoslovakia.—p. 722.
Experimental Arthritis: Changes in Joints Produced by Creating Defects in Articular Cartilage. J. A. Key, St. Louis.—p. 725.
Diagnosis and Frequency of Tuberculous Disease of Knee. H. Sundt, Stavern, Norway.—p. 740.
Split-Heel Approach in Osteomyelitis of Os Calcis. F. J. Gaenslen, Milwaukee.—p. 759.
Operation for Correction of Extremely Relaxed Flat Feet. M. Hoke, Atlanta, Ga.—p. 773.
Use of Anterior Superior Spine and Crest of Ilium in Surgery of Hip Joint. R. K. Ghormley, Rochester, Minn.—p. 784.
Open Reduction of Congenital Dislocation of Hip. F. C. Kidner, Detroit. —p. 799.
New Departure in Treatment of Congenital Dislocation of Hip. A. Krida, New York.—p. 811.
Local and Regional Anesthesia in Orthopedic Surgery. A. Inclan, Havana, Cuba.—p. 816.
Method for Determining Angle of Torsion of Neck of Femur. S. P. Rogers, Elizabethtown, Pa.—p. 821.
*Progressive Pseudohypertrophic Muscular Dystrophy: Results of Treatment with Adrenalin and Pilocarpine with an Analysis of Twenty-Eight Cases. G. de N. Hough, Jr., Springfield, Mass.—p. 825.
Relation of Sympathetic Nervous System to Hypertrophic Arthritis. S. F. Stewart, Los Angeles.—p. 848.
*Fusion of Knee Joint in Cases of Charcot's Disease: Four Cases. M. Cleveland and A. D. Smith, New York.—p. 849.
Displacement of Upper Epiphysis of Femur (Adolescent Coxa Vara) Treated by Closed Reduction. S. A. Jahss, New York.—p. 856.
Rebalancing Operation for Pronated Feet. W. A. Clark, Pasadena.—p. 867.
Peritrochanteric Bursitis: Case. E. Lecocq, Seattle.—p. 872.
Case of Unusual Bone Development. E. Pyle, Waterbury, Conn.—p. 874.
Fracture of Anterior Process of Calcaneus. F. Christopher, Evanston, Ill.—p. 877.
Modified Plaster-Knife Blade. J. B. Griffith, Pittsburgh.—p. 880.
Unusual Fractures of Capitulum Humeri and Capitulum Radii. H. Milch, New York.—p. 882.

Arthroscopy.—According to Burman, the most important indication for arthroscopy is for diagnosis in place of the exploratory operation. But, until arthroscopic pictures of disease are standardized, arthroscopy should first be done, and the observations verified, when necessary, by operation. If the observations arthroscopically are considered definite and decisive enough, it may not be necessary to operate. It is to be expected that, with time and the help of many workers in this interesting field, arthroscopic pictures of disease will become as well known as those of cystoscopy. There should be no hesitation in doing an arthroscopic examination, since it is simple, being a mere puncture in its ultimate essentials, and since it may avoid the more serious opening of the joint. The hole made by the trocar is heart-shaped, and less than 4 mm. in diameter. Whether it is advisable to incise the skin to puncture the joint is a matter of preference. Arthroscopy is indicated also in cases of joint disease the diagnosis of which may be in question and in which exploratory operation is not contemplated. It may be advisable to do an arthroscopic examination to make certain of the diagnosis and therefore to determine the treatment. Arthroscopy should also be done before reoperating on a joint for a possible relapse of an original condition. In this way may be determined, for instance, the posterior remaining fragment of a supposedly completely removed meniscus of a knee joint. When biospy is contemplated to secure synovial specimens, these specimens should be secured by an operative attachment to the arthroscope. Here one is enabled to inspect the joint and to remove the specimen without doing an open operation, especially in doubtful tuberculosis or tumor of a joint. Large bands of adhesion may also be cut by the operating arthroscope. Arthroscopy should be found invaluable in a whole host of diseases—arthritis of joints, diseases of synovia or of the fat pads, intra-articular fractures, foreign bodies or free bodies, injuries to the meniscuses or crucial ligaments of the knee intra-articular tumors, tuberculosis and other granulomas. Therapeutically, ultraviolet rays for internal irradiation of the joint cavity may be produced intra-articularly, and used in the treatment of joint diseases. Arthroscopy is contraindicated when there is no definite indication for it. It should be used discriminatingly in collaboration with a good history and physical examination, and well taken roentgenograms. It is not intended that arthroscopy take the place of joint roentgenograms, nor should the latter be neglected.

Separate Neural Arch.—In a series of 1,520 human skeletons, Willis found a separate neural arch in seventy-nine, or more than 5 per cent. In vertebral columns with twenty-five presacrals, the incidence is almost twice as great as in columns with the regular twenty-four, but the actual percentage in both series is an accident of the sampling rather than a criterion of the population at large. Study of the defect, whether unilateral or bilateral, substantiates its essential origin in a skeletal anomaly and assigns a very minor rôle to trauma. Embryologically the defect falls into the category of anomalous ossifications, of which there are many other examples scattered over the skeleton. It is an anomaly peculiar to the lumbar region and may be found in any lumbar vertebra and on either or both sides, but it is usually confined to the last presacral. Thus spondylolisthesis may be a sign of the anomaly. Trauma plays a secondary part in this condition, the fibrous tissue constituting a point of less resistance to strain than bone structure. The separate neural arch in its origin resembles spina bifida, defective articular processes, and separate bony centers for transverse, mammillary and accessory processes which are peculiarly associated with the lumbar column; it is found more frequently when some other anomaly—such as a twenty-fifth persacral—is present. It is the ultimate result of imperfect ossification, whether this be caused by failure in the ossific process itself or by a defect of the preexisting cartilage.

Progressive Pseudohypertrophic Muscular Dystrophy.—Hough presents data from which he concludes that progressive pseudohypertrophic muscular dystrophy is a more common syndrome than is commonly appreciated, having an incidence of approximately six per hundred thousand of total population in the New England states. The disease is widespread, occurring throughout the civilized world. The recently acquired knowledge of the double enervation of skeletal muscles has opened up a new conception of the pathology and pathogenesis of the disease. Contrary to the original conception that the disease is primarily of the muscle substance, there is evidence to justify the belief that there is a primary lesion of the midbrain, affecting the autonomic nervous system. The endocrine disturbances frequently reported are not an essential part of the disease but are due to derangement of the autonomic enervation of these glands. The endocrine dysfunctionings are seen most commonly in the less typical cases. The complicating central nervous system disorders are due to a more extensive involvement in the primary lesion. In some cases there is suggestive evidence that the primary lesion may be caused by an acute infection. In the majority of cases, however, there is no direct evidence of this. The natural course of the disease is fairly constant—with onset of symptoms appearing between the ages of 2 and 4 and progressing to inability to walk at between 8 and 12. In from four to six years more the use of the arms is lost, and death from an intercurrent infection occurs after another two to three years, at an age of from 15 to 20. Previous therapeutic measures have been almost uniformly without effect. Hypodermic injections of epinephrine and pilocarpine have been of symptomatic temporary benefit in every case. In the extremely advanced cases this improvement has been of more scientific interest than of practical value. In hopelessly bedridden patients, definite increase of independence by the improved use of the arms has been obtained. In a comparatively early case, a symptomatic and functional recovery has been obtained. No claim can be made for the permanence of the improvement. It is the author's purpose to keep the cases under observation and report subsequently on their ultimate outcome.

Fusion of Knee in Charcot's Disease.—Cleveland and Smith report four cases of Charcot's disease of the knee in which operation was performed and in which solid bony fusion resulted in three and the results were highly satisfactory; i. e., the patients were able to walk without a brace or other support and had no instability in the knee. It is interesting also to note that firm union was present in one at four months, in another at five and one-half months and in the third at six months. This compares favorably with cases in which the fusion operation was done for other conditions, such as tuberculosis or stabilization of the knee in poliomyelitis. Not a little doubt was felt as to the possibility of obtaining bony fusion in a Charcot joint. Although this series is too small to justify any general conclusions, the results are sufficiently encouraging to warrant trying the operation in other selected cases. The fourth case, in which fusion did not take place and in which the wound broke down with the formation of sinuses, undoubtedly was too far advanced and the patient should not have been operated on. The patient's general condition was poor and, in addition to involvement of both knees, there was partial destruction of the metatarsal bones of one foot and a trophic ulcer. The technic used in these operations was that described by Hibbs for stabilization of the knee in poliomyelitis, and afterward employed for any condition in which arthrodesis of the knee is indicated, modified somewhat to meet the peculiar circumstances of each case. Weight-bearing in plaster was allowed at the end of from six to eight weeks.

Journal of Comparative Neurology, Philadelphia

53: 263-388 (Oct.) 1931

On Weight of Parts of Brain and on Percentage of Water in Them According to Brain Weight and to Age, in Albino and in Wild Norway Rats. H. H. Donaldson and S. Hatai.—p. 263.

Vascularity of Parts of Spinal Cord, Brain Stem and Cerebellum of Wild Norway Rat (Rattus Norvegicus) in Comparison with That in Domesticated Albino. E. H. Craigie, Toronto.—p. 309.

Studies on Diencephalon of Carnivora. D. McK. Rioch, Amsterdam. —p. 319.

Journal of Immunology, Baltimore

21: 255-340 (Oct.) 1931

Chemical and Immunologic Studies of Pneumococcus II. Ether-Soluble Fraction of Type 1 Pneumococcus. A. Wadsworth and Rachel Brown, Albany, N. Y.—p. 255.

Statistical Study of Relative Goodness of Fit of Two Proposed Theories of Human Blood Group Inheritance. H. H. Strandskov, Chicago.—p. 261.

Random Mating and Blood Groups. R. L. Jenkins, Chicago.—p. 279.

Studies on Crystalline Urease: II. Hemagglutinating Properties of Urease. Margaret Hotchkiss and H. Tauber, New York.—p. 287.

Studies of Properties of Bouillon Filtrates of Meningococcus: Production of a Soluble Toxin. N. S. Ferry and J. F. Norton, Detroit, and A. H. Steele, Northville, Mich.—p. 293.

Quantitative Determination of Fixation of Complement by Immune Serum and Antigen. A. Wadsworth, Elizabeth Maltaner and F. Maltaner, Albany, N. Y.—p. 313.

Journal of Lab. & Clinical Medicine, St. Louis

17: 1-108 (Oct.) 1931

Physiology, Correlations, and Technic of van den Bergh Reaction, Icterus Index, and Quantitative Serum Bilirubin. N. W. Elton, Boston.—p. 1.

Catamenia and Oxygen Consumption. C. L. Wible, Lincoln, Neb.—p. 14.

Study on Series of Arthritic Patients Under Continuous Mono-Iodo-cinchophen Treatment with Especial Reference to Action of Cinchophen Molecule on Liver Tract. E. P. C. White, Philadelphia.—p. 17.

Diabetes Mellitus and Gastric Secretion. M. G. Wohl, Philadelphia. —p. 22.

Septic Cavernous Sinus Thrombosis: Two Cases with Recovery of One Following Bacteriophage Therapy. B. F. Stout, San Antonio, Texas. —p. 28.

Gonococcus Complement-Fixation Test in Synovial Fluid. D. H. Kling and J. Pinkus, New York.—p. 39.

Effects of Ultraviolet Irradiation on Reducing Power of Blood. L. M. Dillman, Chicago.—p. 44.

Journal of Preventive Medicine, Chicago

5: 303-410 (Sept.) 1931

Diphtheria Control in Bridgeport, Connecticut. W. F. Wild and Kathryn R. Tirrell, Bridgeport, Conn.—p. 303.

*Significant Differences in Racial Susceptibility to Measles, Diphtheria and Scarlet Fever: Statistical Study of Case Incidence and Deaths Among Tenement Dwellers in New York City, 1921-1925, Inclusive. H. Emerson, New York.—p. 317.

Typhoid Fever Spread by Water from a Cistern Contaminated by a Carrier. E. Garrido-Morales and O. Costa Mandry, San Juan, Porto Rico.—p. 351.

Meningococcus Meningitis in Detroit in 1928-1929: IV. Meningococcus Carriers. J. F. Norton and Irene E. Baisley, Detroit.—p. 357.

Id. V. Secondary Cases. J. F. Norton, Detroit.—p. 365.

Carrier Infection Among Family Associates of Diphtheria Patients. Y. Kusama, Baltimore, and J. A. Doull, Cleveland.—p. 369.

Effect of Heat, Storage and Chlorination on Toxicity of Staphylococcus Filtrates. E. O. Jordan, G. M. Dack and O. Woolpert, Chicago.—p. 383.

*Case of Food Poisoning Apparently Due to Staphylococcus. E. O. Jordan and J. R. Hall, Chicago.—p. 387.

*Experimental Study of Possible Routes of Contamination of Cakes with Food-Poisoning Staphylococci. G. M. Dack, O. Woolpert, Isabel Noble and Evelyn G. Halliday, Chicago.—p. 391.

Studies on Malaria: VIII. Migration of Infected A. Elutus at Various Seasons of Year. I. J. Kligler and G. Mer, Jerusalem.—p. 401.

Differences in Racial Susceptibility to Measles.—In a statistical study of case incidence and deaths among several race groups of tenement dwellers in Manhattan, borough of New York (1921-1925), Emerson found significant differences in the death and case incidence rates and in the case mortality percentages for diphtheria and scarlet fever, and in the death rates for measles, which do not appear to be explained by other factors than those of variations of susceptibility and resistance among the children of these races, under the approximately uniform conditions of contact exposure described. While unequivocal proof of specific race resistance cannot be offered by the statistical methods used in his study alone, the author believes that the factor of race is the only one of importance that can be recognized clearly as a variant of significance among the population groups studied.

Food Poisoning Due to Staphylococcus.—Jordan and Hall report an instance of food poisoning in a man and his wife who were suddenly taken ill with violent vomiting and purging accompanied by great prostration. The family consisted of three—the father and mother and a child about 9 years of age. The two adults, who had eaten gravy with the evening meal, developed severe symptoms in about three hours; the child, who did not eat gravy, showed no signs of illness. The gravy had been prepared on Tuesday from the leftover portions of canned chicken that had been served for Sunday dinner. The can bore the brand of a reliable, well known and nationally advertised firm. The chicken eaten on Sunday had caused no symptoms of any sort. In making the gravy, the bits of chicken meat and the broth or stock from the can were used. After preparation, the gravy had been kept in the icebox until Wednesday evening, when it was warmed and eaten at about 6 p. m. The gravy which was brought to the laboratory in the bowl in which it had been served the evening before, was normal in appearance and odor. Platings were made on plain agar, Endo medium and eosin-methylthionine chloride medium. No colonies suggesting those of the Salmonella group were found, but staphylococcus colonies were abundant on the plain agar. The general cultural characters of this staphylococcus were those of the common Staphylococcus aureus type. In pure culture the staphylococcus formed substances that, when swallowed by human volunteers, reproduced the typical picture of the original outbreak.

Contamination of Cakes with Staphylococci.—Dack and his associates report that staphylococci, introduced through inoculated egg whites or yolks into various cake batters of either the sponge or butter variety, were killed during the baking process. This was true in cakes of hydrogen ion concentrations ranging from 5.0 to 8.2. Staphylococci similarly introduced into a cream filler for cakes were destroyed during the cooking of the filler. Staphylococci inoculated into the filler after its preparation invaded the cake substance. Human feeding experiments showed that both the organisms and the toxic substance were present in the filler and in the cake itself. It therefore seems likely that, in some of the food poisoning outbreaks due to staphylococci in cake, the filler is contaminated after its preparation, the microbes from the filler later invading the cake substance.

Kentucky Medical Journal, Bowling Green

29: 521-574 (Oct.) 1931

Epidemiology in Communicable Disease Control. J. L. Jones, Louisville. —p. 534.
Symposium on Orthopedic Surgery: Preschool Posture, a Problem in Prophylaxis. H. Goldberg, Louisville.—p. 539.
Congenital Deformities. R. L. Woodward, Louisville.—p. 540.
Orthopedic Aspects of Poliomyelitis. J. D. Trawick, Louisville.—p 542
Tuberculosis of Joints. I. A. Arnold, Louisville.—p. 543.
Medicine and Public Health. J. S. Chambers, Lexington.—p. 546
Anesthetist, Surgeon, Patient and Their Relationship. W. T. Dowdall, Paducah.—p. 550.
Roentgen-Ray Values to Practitioner of Medicine. D. Y. Keith, Louisville.—p. 552.
Diaphragmatic Hernia: Case Report. K. A. Fischer, Louisville.—p. 555
Hemolytic Staphylococcus Septicemia, Autopsy Report and Case Summary. G. G. Altman, Louisville.—p. 558.
Acute Abdomen. C. G. Follis, Glasgow.—p. 560.
Some Observations on Recently Discovered Endocrine Diseases G. J Hermann, Newport.—p. 561.
Transposition of Viscera: Case. D. C. Elliott, Louisville.—p. 563.
Acute Pancreatitis. J. H. Dunn, Arlington.—p. 564.
Present Trend in Treatment of Tuberculosis. H. M. Meredith, Scottsville.—p. 565.
Adult Tuberculosis. J. C. Graham, Webbs.—p. 567.
Hemorrhagic Disease of the New-Born. J. F. Standard, Elkton.—p. 568.
Carbonate of Guaiacol in Lung Affections. W. T. Baker, Louisville. —p. 570.

Laryngoscope, St. Louis

41: 663-732 (Oct.) 1931

Regarding Morphologic and Functional Changes of Internal Ear in Arteriosclerosis. G. Fabinyi, Baltimore.—p. 663.
Acute Retropharyngeal Abscess: Cases. E. B. Brooks, Lincoln, Neb. —p. 671.
Observations on Paralysis of Recurrent Laryngeal Nerve. A. Michaelis, New York.—p. 687.
Tertiary Syphilis of Larynx. L. Glushak, New York.—p. 694.
Studies in Sinus Infection. J. W. Pugh, New York.—p. 697.
Foreign Bodies in Air Passages. G. R. Brighton, New York.—p. 702.
Primary Jugular Bulb Thrombosis: Metastatic Abscesses: Case. H. F. Lampe, New York.—p. 704.
Report of Operation for Removal of an Exostosis from Postero-Inferior Wall of External Auditory Canal. J. W. White, Norfolk, Va.—p. 706.
Two Unusual Cases of Labyrinthitis. C. M. Griffiths, New York.—p. 708.
Rare Pathologic-Anatomic Finding. V. Gakkel and A. Minkovsky, Leningrad, U. S. S. R.—p. 711.
Simplified Method for Correction of Dishface. J. W. Maliniak, New York.—p. 715.
Nupercaine, New Local Anesthetic, and Its Use in Nose and Throat Practice. A. F. Laszlo, New York.—p. 718.
Improved Powder Blowers for Applying Iodine Powder (Sulzberger). M. D. Lederman, New York.—p. 723.

Oklahoma State Medical Assn. Journal, Muskogee

24: 317-344 (Oct.) 1931

Silicosis. F. V. Meriwether and R. R. Sayers, Picher.—p. 317.
Legal vs. Physical Disability in Compensation Cases. W. H. Bailey, Oklahoma City.—p. 325.
Diagnosis and Treatment of Arthritis. E. K. Witcher, Tulsa.—p. 327.
Treatment of Fractures by Skeletal Traction. S. R. Cunningham, Oklahoma City.—p. 331.
Rationale of Vaccine Therapy in Chronic Infectious Arthritis. E. Goldfain, Oklahoma City.—p. 332.
Arthritis. W. P. Fite, Muskogee.—p. 335.
Operative Treatment of Unreduced Dislocated Elbow. D. H. O'Donoghue, Oklahoma City.—p. 337.

Public Health Reports, Washington, D. C.

46: 2481-2537 (Oct: 16) 1931

*Typhus Fever: Experimental Transmission of Endemic Typhus Fever of United States by Rat Flea Xenopsylla Cheopis. R. E. Dyer, E. T. Ceder, R. D. Lillie, A. Rumreich and L. F. Badger.—p. 2481.
Sickness Among Male Industrial Employees in Second Quarter of 1931. D. K. Brundage.—p. 2499.

Typhus Fever.—Dyer and his associates present experimental data showing that the rat flea (Xenopsylla cheopis) as a vector of endemic typhus meets the requirements of the epidemiologic evidence. The virus of endemic typhus has been recovered repeatedly from rat fleas taken at typhus foci, and, finally, experimental transmission of the virus from rat to rat by means of the rat flea has been carried out in the laboratory. The foregoing evidence points to the rat flea as a common vector of endemic typhus fever from rat to rat and from rat to man.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Heart, London

26: 1-67 (Oct. 7) 1931

*Centripetal Paralysis Arising Out of Arrested Bloodflow to Limb, Including Notes on Form of Tingling. T. Lewis, G. W. Pickering and P. Rothschild.—p. 1.
*Vasodilatation in Limbs in Response to Warming the Body: With Evidence for Sympathetic Vasodilator Nerves in Man. T. Lewis and G. W. Pickering.—p. 33.
Observations on Irresponsiveness and Refractoriness of Vessels of Skin. E. J. Wayne.—p. 53.

Centripetal Paralysis Arising Out of Arrested Bloodflow to Limb.—Lewis and his associates state that if the circulation to an arm is arrested, the limb after a time ceases to function owing to paralysis of its nerves. It is the nerve itself and not the nerve ending that is affected. Loss of tactile sense and of sense of position is early; it begins distally and spreads centripetally. Appreciation of pain, heat and cold is maintained much longer than is the tactile sense. The motor apparatus is affected in an order that is described and that is in general centripetal. Extensors become involved before flexors. The pilomotor nerves long retain their function. The sequence of loss of function is discussed in relation to the size of fiber involved. Recovery from ischemia is rapid and the order of recovery is the reverse of the order of involvement. The mechanism of centripetal paralysis is fully discussed on the basis of experimental work and evidence is brought to show that the nerves (sensory and motor) become more sensitive to ischemia as they are traced back from their endings toward the central nervous system. Evidence has not been obtained that ischemia produces conduction with decrement. The rate at which given nerve fibers cease to function is affected by their temperature. If nerve and muscle have been exposed equally to a toxic influence, and it is found that the muscle responds to direct stimulation but not to nerve stimulation, a conclusion that the neuromuscular junction is at fault is not justified. The fault may lie in the nerve trunk itself, as ischemic paralysis illustrates. A type of uniformly developing anesthesia resulting from pressure rendering short stretches of nerve trunks ischemic is described and contrasted with centripetal anesthesia. Subjective tingling occurring after the bloodflow to an arm has been arrested and released is due to a certain state of recovery of the fibers of the nerve trunks and is referred to the periphery. There is evidence tending to suggest that it is an affair of the tactile nerves; it is referred to the territories of the fibers that are most affected by circulatory arrest, namely, those supplying the fingers. The observations and experiments described are applicable to clinical cases from several points of view. First, they lay stress on a special form of sensory and motor palsy here termed "centripetal." It is well known of peripheral neuritis, arising out of various forms of poisoning, that the disturbances of sensation and the loss of power appear first in the distal parts of the limbs, that on the motor side the tendency is for the extensors to become affected before the flexors, and that the symptoms in progressing invade more proximal parts of the limb and that the trunk remains relatively immune. In these forms of neuritis, all parts of the body are exposed to a toxic agent but there is discrimination. The form of paralysis resembles in type the one studied, and it is difficult to believe that they are brought about in ways that differ fundamentally. It is suggested that the common factor is increased susceptibility of the nerve fiber to certain forms of damage as it is traced away from its peripheral ending. It is further suggested that it may be proper to regard numbness developing in the finger tip and weakness or paralysis of distal muscles in the limb, more rigidly than these symptoms have been regarded hitherto, as evidences of a disorder of the peripheral nerves. In the same connection it may be profitable to consider whether tingling of the precise form described is or is not a symptom characteristic of a specific type of change in the peripheral sensory (and especially tactile) nerve paths. Secondly, the observations establish the time relations of numbness and other symptoms of nerve damage arising out of vascular obstruction on a reasonable basis. If a clot lodges in the main artery of a limb, obstructing it, or if the main arteries of a finger or of a larger part of the limb enter into a spasm sufficiently intense to arrest the bloodflow, sensory and sometimes motor disturbances occur in the corresponding territory. They are of centripetal type and from the standpoint of forming an exact parallel to the paralysis observed do not require further comment. It is important to understand that such disturbances do not develop at once, but after intervals of time that depend on the length and temperature of the nerve that has lost its blood supply. To illustrate, it is often stated by patients, and seemingly believed by many who report such cases, that, in Raynaud's disease, fingers become white and numb at the time the circulation to them is lost; and this numbness has even been regarded as an evidence of a primary disturbance in the nervous system. Such views are proved erroneous by the authors' observations; the numbness is due to arrested bloodflow, and occurring in cold fingers appears only after a long delay. When a patient states that fingers that have been warm previously become dead, meaning numb, in cold weather, the numbness is evidence that the blood has ceased to flow to the fingers for a time period of the order of one hour. Similarly, if a patient complains of pain in the leg and within five minutes the leg is found to be numb and to have lost the pulsation of its vessels, it is certain that the obstruction preceded the pain by many minutes. Statements that limbs suddenly become white (or pale) and numb should be regarded critically until such incidents are more fully and accurately recorded.

Vasodilatation in Limbs in Response to Warming the Body.—According to Lewis and Pickering, a simple method of testing the capacity of arteries of the extremities to dilate is to note the reaction in the cool extremity when the body is exposed to a warm atmosphere. In the hand, vasodilatation so induced manifests itself first by a rise of temperature and by brightening in the color of the finger tips. The time at which the response begins is influenced by the initial temperature of the extremities, being delayed by coldness. The response is effected entirely through the sympathetic nerves. By studying the reaction in Raynaud's disease and comparing the effects of ulnar anesthesia, the authors obtained evidence that the human sympathetic nerves contain vasodilator as well as vasoconstrictor fibers. The warm chamber is valuable clinically in differentiating obstruction arising from spasm and from structural disease of the arteries. In the former the response is rapid and proceeds to a high level. In the latter the response is slow and less pronounced. The chamber can also be used in determining that the sympathetic innervation of vessels of the limb has been lost.

Lancet, London

2: 833-886 (Oct. 17) 1931

*Some Principles in Surgery of Pharynx. W. Trotter.—p. 833.
*Size of Healthy Heart and Its Measurement. D. E. Bedford and H. A. Treadgold.—p. 836.
*Cerebral Tumor as Cause of Generalized Epileptic Attacks of Long Standing. E. A. Blake Pritchard.—p. 842.
*Occurrence of Scarlatinal Types of Streptococci in Nonscarlatinal Infections. V. D. Allison.—p. 844.
Case of Multiple Personality. R. M. Riggall.—p. 846.

Surgery of Pharynx.—Trotter calls attention to the fact that the mortality of operations for malignant disease of the pharynx is considerable, whether the actual treatment of the growth is by excision or by radium. The chief factor in this mortality is infection either of the lungs or of the extrapharyngeal tissues but in any case due to access of the pharyngeal contents to the infected part. The actual conduct of the operation can undoubtedly reduce the risk of such infections, but it cannot ever exclude it with certainty. While therefore every step of the operation will be oriented toward the limitation of infection, other means must be found of a more general usefulness if the mortality is to be kept below a level prohibitively high. The infection that follows contamination of a wound by pharyngeal mucus has clinical features and a clinical course that are characteristic. It is a progressive sloughing cellulitis, nonsuppurative for several days, accompanied by moderate fever for eight to ten days, when suppuration and the separation of sloughs begin. It is intolerant of the least restraint of drainage and always involves a risk of serious secondary hemorrhage. Clinical experience proves that the cause of this characteristic infection is always present in those who have teeth whether the teeth are many or few, or with or without obvious disease; it also proves that in the edentulous the cause of this infection tends to disappear or to be greatly attenuated. Thus, in the aggregate the risks of major operations on the pharynx are greatly reduced in the edentulous, and there is no general precaution in the preparation of a patient for such an operation that can compare in value with a clearance of the mouth and a delay until the gums are soundly healed. There are few facts of clinical surgery more firmly established than this relation between the presence of teeth and the liability to sloughing infections of wounds to which the oral or pharyngeal mucus has access; there is certainly none so unquestionably true that is so little valued and acted on. So much is this the case that it is necessary to speak of the subject with emphasis and without ambiguity. It is doubtful whether a major operation on the pharynx is ever justifiable in any but an edentulous patient. This question is quite different from that of clearing the mouth to produce an effect on some general or distant disease. One is not concerned with anything so problematic but with the attempt to get the pharynx into a condition as near surgical cleanliness as one can, and no other precaution for such a purpose has any claim to compare with this one. It is necessary to lay stress on the fact that if the relative sterility of the mouth is a most important preliminary to any major pharyngeal operation, it is doubly important if radium is to be used. It is perhaps because radium is sometimes regarded as having simplified the treatment of malignant disease of the pharynx that there is a tendency to disregard the stringent necessity for every precaution against infection when it is used. If it is questionable whether any major operation on the pharynx should be done except in the edentulous there can be no doubt that if radium is to be used this precaution is essential to reasonable safety.

Size of Healthy Heart and Its Measurement.—Bedford and Treadgold believe that location of the apex beat by palpation is the most reliable clinical method of measuring the heart, and orthodiagraphy is the simplest and most accurate roentgenologic method. The total transverse diameter is the most reliable index of heart size for practical purposes. The transverse diameter varies directly with body weight but not with height. At any given weight, the transverse diameter varies inversely with height. Short, broad subjects have wider hearts in proportion to body weight than tall, slender subjects. The normal transverse diameter may be predicted with reasonable accuracy from body weight in those whose height is ideal for their weight. In others both height and weight must be taken into account in predicting heart size. The observed transverse diameter expressed as a plus or minus percentage of that predicted from weight and height is the best way of indicating heart size. If one takes into account both weight and height, about 85 per cent of normal hearts fall within a range of plus or minus 10 per cent of the predicted normal, and less than 10 per cent of hearts exceed the upper limit of plus or minus 10 per cent. Measurements cannot be applied as a rule of thumb method in separating healthy from diseased hearts, but must be considered in relation to the clinical data. In borderline cases changes in the shape of the heart silhouette, viewed from different angles, are likely to be of more value than measurements.

Cerebral Tumor as Cause of Generalized Epileptic Attacks.—Pritchard reports five cases which show that it is possible for a cerebral tumor to give rise to generalized convulsions and to status epilepticus for many years (in one case for eighteen years) before any other signs indicating a local cerebral lesion are detected. In general it may be stated that such tumors are slow-growing and do not originate in, but beneath, the cerebral convolutions. The seizures cannot be rightly regarded as resulting from a rise in intracranial pressure, since they may be present for many years before other signs of such a rise are present, and also because they do not increase either in frequency or in severity when a rise in intracranial pressure later supervenes. The inference drawn from these considerations is that when convulsions commence and occur repeatedly in persons of middle age—even though the convulsions are generalized in character and do not leave behind them local impairment of function—they should be regarded as possibly resulting from an intracranial tumor and the patient should be kept under repeated observation, which may only after several years discover definite signs indicating the nature of the lesion.

Scarlatinal Types of Streptococci in Nonscarlatinal Infections.—Out of a total of 396 strains of hemolytic streptococci, isolated from nonscarlatinal infections, Allison found that only eight (2 per cent) belonged to one or other of the four main serologic types of scarlatinal streptococci. The results indicate the high degree of specificity of the scarlatinal streptococci, as 63 per cent of hemolytic streptococci from scarlatinal patients can be typed serologically. Among the eight typed strains, a type I strain and type III strain were isolated from uterine cervical swabs in cases of puerperal infection, while a type I strain and a type III strain were isolated from throat swabs of midwives in attendance on the respective patients. These results corroborate those recently shown by Smith and support the view of many clinicians that puerperal infection may arise by infection from the air passages of persons in attendance on the patients. From 100 consecutive cases of diphtheria and 100 consecutive cases of measles, 62 strains and 32 strains, respectively, of hemolytic streptococci were isolated, but none were placed in any of the main serologic types of scarlatinal streptococci.

"Gann," Japanese J. Cancer Research, Tokyo

25: 131-222 (Sept.) 1931

*Strictly Cell-Free Transmission of Rous Chicken Sarcoma. W. Nakahara and H. Nakajima.—p. 131.
Heteroplastic Transplantation of Artificially Produced Skin Cancer of Mice. S. Itô.—p. 141.
An Interesting Case of Melanoma. M. Hirai.—p. 191.

Transmission of Rous Chicken Sarcoma.—By means of the capillary method and of the application of the micro-isolation technic, Nakahara and Nakajima were able to test the tumor-producing action of that portion of the Rous sarcoma filtrate which had been directly examined and found to be free from cells. With the capillary method, the proved cell-free filtrates produced sarcoma in two out of nine chickens, or two out of eighteen inoculations, while with the micro-isolation method as many as thirteen out of thirty-two inoculations (seven out of sixteen chickens) resulted in tumor production. The larger percentage of tumors in the latter experiment is traceable to the larger amount of filtrate injected. Positive tumor production by inoculation of minute amounts of chicken sarcoma filtrate directly examined and proved cell-free vindicates the long and generally held supposition that this class of tumors can be transmitted without the intervention of intact cells. Thus the last cloud of doubt as to the cell-free transmissibility of the Rous sarcoma, and consequently as to the existence of a causative agent distinct from sarcoma cells recognizable as such, has been removed.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

47: 1511-1534 (Oct. 26) 1931

*Homolateral Atrophy of Mammary Gland in Course of Artificial Pneumothorax. E. Rist and P. Véran.—p. 1511.
Parathyroid Adenoma with Metastases: Case. J. A. Lièvre and P. Muller.—p. 1515.
Heredosyphilitic Familial Hepatosplenomegaly: Therapeutic Test. M. Pinard.—p. 1523.
Hepatic Manifestations in Course of Encephalomeningeal Diseases. C. Richet, Jr., A. Jacquelin and F. Joly.—p. 1528.

Atrophy of Mammary Gland and Artificial Pneumothorax.—Rist and Véran describe their experiences in which six women, out of a total of ninety patients with pulmonary tuberculosis treated by artificial pneumothorax, developed an atrophy of the mammary gland on the side of the pneumothorax. There was present not only a displacement of the gland, which is common to contraction of the chest, but in addition actual atrophy of the glandular lobules. The atrophy was evident from the first, but when more or less masked by the neighboring tissue its extent was determined by palpation. The patients themselves noticed this complication during the first months of collapse therapy or several years after the beginning of the insufflations. The condition was slowly but regularly accentuated and the glandular mass was reduced to more than half of the original size. The condition was independent of the type of the primary pulmonary lesion or the side of the chest affected. In most instances, the pneumothorax had been complicated by febrile, prolonged, recurrent, tenacious effusions. In every case there was contraction of the chest, with intense thoracic retraction, pleuricostal depressions and dextrocardia or sinistrocardia. The atrophy of the mammary gland was independent of ovarian function and all other endocrine disturbances. The authors did not doubt the relationship of cause and effect between the pleuropulmonary and thoracic retraction on the one hand and the glandular atrophy on the other hand. They were not able to determine the actual anatomy and physicopathology of the complications but believed that the condition was due to elective lesions of the sympathetic or cerebrospinal fibers, separately or together; the neuritis of the intercostal nerves, by reason of a probable pleurogenic irritation, may have been responsible for the homolateral atrophy of the mammary gland. This trophic disturbance is unlooked for in the course of pneumothorax therapy.

Presse Médicale, Paris

39: 1517-1532 (Oct. 17) 1931

*Importance of Sympathetic System in Metabolism. E. Leschke.—p. 1517.

Importance of Sympathetic System in Metabolism.—Leschke discusses the various hypotheses on the etiology of diabetes insipidus, sugar diabetes, and disorders in fat metabolism. His observations are contrary to the theory that the hypophysis is the etiologic factor in diabetes insipidus. Hypophyseal alterations when present are secondary factors to the rôle of the thalamencephalon, which acts through the central sympathetic nervous system in the regulation of water-mineral metabolism. The endocrine factor in pancreatic diabetes is given second place to the sympathetic nervous system, since the production of insulin itself is regulated by the sympathetic system. His observations prove that pancreatic diabetes does not depend on the amount of insulin secreted or parallel the changes in the islands of Langerhans. The assertion is made that polyuria is almost always a sign of disorder in the plurisympathetic regulation of water and mineral metabolism. Constant chloride retention in diabetes is an indication of aggravation of the conditions in metabolism; and a sudden diminution of chlorides is a forewarning of coma. There is also a relationship between arterial pressure and diabetes. Idiopathic hypertony may cause the appearance of sugar in the blood and alimentary glycosuria. The author breaks down the old theories that named the hypophysis as chief cause and substitutes the diencephalon as a factor in adiposogenital dystrophies as well as obesity in general. Endogenous obesity is designated in this classification as a symptom of vagotonia. The author designates as plurisympathetic many regulatory disorders of the diencephalon in which diabetes insipidus may be combined with disorders in sugar metabolism, regulation of temperature, obesity, hypertony and polyuria, as well as regulation of the basic instincts.

Revue Française d'Endocrinologie, Paris

9: 259-342 (Aug.) 1931

*Association of Vagotonic Pancreatic Extract (Vagotonic Hormone) with Insulin in Diabetes. D. Santenoise, T. Brieu, G. Fuchs, P. Louyot and M. Vidacovitch.—p. 259.

Vagotonic Pancreatic Extract and Insulin in Diabetes.—Santenoise and his co-workers have shown that the pancreas plays an important part in the regulation of reflex excitability and pneumogastric tonus. The pancreas introduces into the circulation a substance that regulates the activity of the vagus nerve. Purified insulin is not vagotonic as is usually believed; that property is a function of another hormone. They have extracted from the pancreas a substance presenting all the characteristics of true hormones and endowed with considerable pneumogastric activity. The substance differs from insulin in biologic, chemical and physicochemical characteristics and has been designated by Santenoise in 1922 as a pancreatic vagotonic hormone. Insulin demonstrated vagotonic properties when it was not pure and contained the accessory hormone. This vagotonic hormone seems to be a regulator of glycogen through its influence on the vagus nerve. There is a dual action in the glycoregulatory hormones of the pancreas; the vagotonic hormone regulates the anabolism and insulin the catabolism of carbohydrates. The addition of the hormone increases the action of insulin. Their glycoregulatory action is synergistic and complementary. The results obtained when the two hormones were associated in the treatment of diabetes were conclusive. In summary, the addition of the vagotonic hormone to insulin in the treatment of some diabetic persons increased the glycoregulatory function of the pancreatic extract, the quantity of insulin necessary was diminished and the number of daily injections sometimes cut to one; increased carbohydrate tolerance made possible an increased intake of sugar; the glycosuria and acetone bodies disappeared; the lipoid and protein metabolism was improved; there was an increase in weight and an improvement in the general body condition. More than thirty patients with diabetes were treated in this way. The authors believe that their results recommend the association of the vagotonic pancreatic extract with insulin in the treatment of diabetes.

Sang, Paris

5: 513-640, 1931

*Leukemias with Tumors. P. Emile-Weil and P. Isch-Wall.—p. 513.
Clinical, Hematologic and Histologic Observations in a Case of Leuko-Erythrophthisis. N. C. Lupu and G. C. T. Nicolau.—p. 530.
Thrombopenic Hemorrhagic Diathesis with Severe Secondary Anemia. J. V. Grott and L. Galınowski.—p. 547.

Leukemias with Tumors.—Emile-Weil and Isch-Wall believe that (1) leukemias with tumors are acute leukemias; (2) the appearance of osseous, cutaneous or lymph node tumors in the course of a chronic leukemia announces the transformation into acute leukemia with a rapidly fatal prognosis. When the acute stage has appeared, all treatment that might lead to destruction of leukocytes, roentgen rays, or benzene should be discontinued, and purely palliative and symptomatic therapeutics retained. Continuation of active therapy only helps to precipitate the evolution with consequent acute hemorrhagic accidents. The authors review five cases including an acute leukemia with a primary tumor of the mediastinum, a chloroma diagnosed as acute leukemia, two cases of acute leukemia with tumors of the lymph nodes subsequent to myeloid leukemia, and one case of acute leukemia with cutaneous tumors subsequent to myeloid leukemia.

Prensa Médica Argentina, Buenos Aires

18: 437-486 (Sept. 10) 1931

Obliteration of Peripheral Vessels. M. Bastos Ansart.—p. 437.
Postencephalitic Sclerosis with Plaques Associated with Tubero-Infundibular Syndrome. A. F. Camauër and J. I. Sacon.—p. 448.
*Fat Necrosis of Subcutaneous Tissues. D. Mosto.—p. 452.
Therapeutic Action of Drainage of Bile Ducts. H. A. Zunino.—p. 472.

Fat Necrosis of Subcutaneous Tissues.—Mosto reviews the literature on fat necrosis of the subcutaneous tissues and reports ten cases in new-born infants, children and adults. The lesions do not show an elective localization since they may develop in the subcutaneous tissues of the mammary gland, abdomen and muscles, particularly in the muscle regions in which oil injections are given. From his observations the author concludes that fat necrosis of the subcutaneous tissues is similar in adults, children and infants. The following are its principal types: (1) primary (aseptic) necrosis of spontaneous development (which is caused by disturbances of the fat metabolism) and (2) necrosis secondary to trauma or to inflammatory processes. The form of diffuse nodular fat necrosis of the subcutaneous tissues of the new-born infant and of children may be either of the first or of the second type. From the anatomic and pathologic points of view, the lesion is similar to lipoid granulomas caused by injections of oil or some other liquid or by the presence of collections of cholesterol. In the anatomicopathologic observations the saponification of the fat and the formation of granulation tissue are evident. In the genesis of the tumors, both predisposing and determining factors are involved. The outstanding predisposing factor is a condition of special tendency, governed by the endocrine and the sympathetic nervous systems, which certain organisms have to develop the disease. Trauma, hemorrhage, ischemia, vascular lesions, inflammatory processes and the presence of toxins in the organism are the most frequent determining causes of the development of the disease.

18: 487-536 (Sept. 20) 1931

Intra-Articular Endothelioma Arising from Synovial Membrane: Case. J. Diez.—p. 487.
*Syndrome of Anterior Condyloid Foramen and of Foramen Lacerum Posterius: Case. C. Pinedo.—p. 501.
Lowering of Hyperchlorhydria After Gastric Resection According to First Method of Billroth. F. Basch.—p. 505.
Therapeutic Action of Medical Drainage of Bile Ducts. A. Zunino.—p. 521.

Syndrome of Anterior Condyloid Foramen and of Foramen Lacerum Posterius.—Pinedo states that the syndrome of the anterior condyloid foramen and of the foramen lacerum posterius (paralysis of the last four cerebral nerves) is uncommon. He could not find any reference to the syndrome previously published in Argentina. Vernet in 1916 compiled fourteen cases from the literature. In the author's case, clinical and anatomopathologic observations were made. In the case under his observation the syndrome proved to be caused by compression of the glossopharyngeal, the vagus, the accessory and the hypoglossal nerves of the right side, produced by a myelosarcoma arising from the transverse processes of the first and second cervical vertebrae, with extension to and destruction of nearby structures. The author describes the mechanism of the syndrome in detail, thus explaining the whole picture given by the syndrome: anesthesia of the velum palatinum, anesthesia and paralysis of the pharynx, the larynx and the tongue, dysphagia, disturbances of the voice and of the taste, and respiratory disturbances with grave asphyxia, all the symptoms undergoing a progressive evolution to a fatal outcome.

Semana Médica, Buenos Aires

38: 865-944 (Sept. 17) 1931. Partial Index

Combined Orthopedic and Rest Treatment in Pott's Disease. J. M. Jorge, M. Gamboa and J. Dietsch.—p. 873.
Hematoma of Sheath of Optic Nerve After Trauma. A. J. Manes.—p. 878.
*Milk in Infant Feeding. E. Foster.—p. 891.
Primary Sarcoma of Lung in Infant. J. G. Fernández and M. A. Carri.—p. 907.
Hemolytic Anemia of Old Persons: Case. J. C. Rey.—p. 912.
*Multiple Perforations of Small Intestine by Bullet. J. A. Luco and J. Passerini.—p. 921.

Milk in Infant Feeding.—Foster believes that breast feeding is the best alimentation for nurslings. He made a chemical analysis and a comparison of effects of breast milk, cow's milk and ass's milk. The content of lactalbumins in breast milk and in cow's milk is similar (5.2 and 5.5 Gm. per thousand cubic centimeters, respectively), while in ass's milk it is higher (8 Gm. per thousand cubic centimeters). The number of calories produced by breast milk and by cow's milk is 761 and 676, respectively, while that given by ass's milk is 500. The author (basing his observations on the results of his studies on problems of anabolism and catabolism of the elements of the three kinds of milk, in relation to digestive ferments and enzymes, as permitting a better assimilation of the nutritious elements of milk by the infant's digestive apparatus) regards cow's milk as the most satisfactory substitute for breast milk whenever the latter is not available. Raw cow's milk may contain pathogenic bacteria (including tubercle bacilli); it is difficult to digest and therefore causes intestinal disturbances. To make it more easily assimilable and safer for infants, one should properly modify it, trying, however, to keep the concentration of its elements in the most approximate proportion to that in breast milk. When used in artificial feeding, it should be boiled, mixed with an equal amount of water and then enriched by the addition of cream or carbohydrates (saccharose or common sugar), to compensate for the loss of its nutritious value which it undergoes through dilution and boiling. The addition of cream (as representative of fatty substances) may be higher in winter than in summer. Evaporated milk and dried milk, because of their avitaminic properties, if used in artificial feeding should be given either temporarily or as a supplementary food to breast milk or to cow's milk.

Multiple Perforation of Small Intestine by Bullet.—Luco and Passerini advise the performance of an abdominal operation immediately on admission of patients who have received a bullet wound, when there are good reasons to suppose that the bullet has penetrated the abdominal cavity, even though peritoneal or abdominal symptoms may be absent. Their patient, aged 28, received a shot in the right inguinal region. There was not any opening showing the exit of the bullet. (Besides the abdominal wound, the patient had also received other wounds in his head, with a knife, and on admission he was in a grave condition of anemia and shock due to the hemorrhages from the wounds. This grave condition, however, was controlled.) Roentgen examination showed the presence of the bullet in the symphysis pubis. Five hours after the patient was wounded, operation was performed. A large hematoma in the suprapubic and retropubic regions and in the perivesical space, behind the symphysis, was found after the performance of an infra-umbilical laparotomy. The hematoma was eliminated, and the bullet was removed from the symphysis pubis. The authors thought that the patient had received an extraperitoneal wound, but on opening the abdominal cavity they found that the small intestine had four perforations in a segment about 30 cm. long. The perforations were sutured, and the ,operation was finished after two drainage tubes had been inserted. The patient did well and was discharged twenty-nine days later in good condition.

Archivio Italiano di Urologia, Bologna

7: 3-112 (Sept.) 1931

*Pyelography. S. Zanetti.—p. 3.
Experimental Aspergillar Ureteropyonephrosis in Connection with Ureterectasis. F. Leinati.—p. 55.
*Desensitization of Organism Toward Disturbances Following Spinal Anesthesia in Urinary Surgery. A. Vitale.—p. 67.
Bilharzia Infection of Renal Pelvis: Case. A. De Luca.—p. 74.
Value of Indican Determination in Blood for Functional Exploration of Kidney. L. Serra.—p. 85.
Experimental Hydronephrosis and Pyelovenous Backflow. V. Ghiron and C. Giacobbe.—p. 91.

Pyelography.—Zanetti admits that his experience has not been so extensive that his conclusions have the character of finality. The method that up to the present has been found entirely harmless appears to the author satisfactory. It is certainly rare to see in pyelograms such excellent and distinct images as are secured with ascending pyelography. But irrespective of the value of the method there remains always a field that belongs to intravenous pyelography. In this field are included all the cases (and they are many) in which ascending pyelography is impossible. The two methods, then, do not exclude but supplement each other. Descending pyelography cannot pretend to replace the old methods of research; it merely supplements them and collaborates with them in establishing a diagnosis. The author recommends whenever possible an examination by means of endovenous pyelography, as a preliminary inquiry. Later, if it is impossible to reach a definite conclusion otherwise, he supplements the information furnished by the first method by the use of the ordinary method of pyelography. The author recalls the words of the French physician Papin uttered at the congress of the French Urologic Society, May 13, 1929: "It is not with impunity that we inject into the urinary organs massive solutions of bromide and iodide, for, when one operates immediately afterward, one finds that the damage is sometimes considerable."

Desensitization of Organism Toward Disturbances Following Spinal Anesthesia in Urinary Surgery.—Vitale explains a new prophylactic treatment with reference to the mild and the grave disturbances resulting from spinal anesthesia, as presented by patients subjected to various operations on the urinary passages. Comparing his observations following the use of his method in 100 persons subjected to spinal anesthesia for various surgical interventions on the urinary passages with the results secured in the same number of patients subjected to various surgical interventions on the urinary tract, in which the method was not applied, he demonstrates the great value of the method, which consists in the intravenous injection, just prior to the beginning of the operation, of 10 cc. of cerebrospinal fluid, which is withdrawn before the injection of the anesthetic. The mechanism of the action consists doubtless in the fact that the fluid, introduced into the blood stream, produces a desensitization of the organism, whereby the appearance of the disturbances (often grave and sometimes fatal) that may follow spinal anesthesia is prevented.

Clinica Chirurgica, Milan

34: 825-952 (Aug.) 1931

*Changes in Sugar Content of Blood and Cerebrospinal Fluid in Persons Suffering Cranio-Encephalic Injuries. P. Cazzamali.—p. 825.
Chloruremia and Chlororrhachia Associated with Craniocerebral Traumas. M. Tabanelli.—p. 844.
Influence of Kidneys on Alkali Reserve in Traumatic Shock. G. Augi.—p. 858.
*Collateral Cerebral Circulation After Ligation of Large Veins of Neck. M. Romeo.—p. 881.

Changes in Sugar Content of Blood and Cerebrospinal Fluid in Persons Suffering Cranio-Encephalic Injuries.—Cazzamali studied in twenty-seven patients the influence that cranio-encephalic traumas may exert on carbohydrate exchange. In fifteen patients he determined the behavior of the sugar content of the cerebrospinal fluid. From the results secured he concludes that all such traumas, if fairly severe, provoke transient hyperglycemia, the degree and significance of which are in relation to the mechanism of the traumatic action, the violence of the impact and, particularly, the depth and duration of the loss of consciousness and the degree of cranial hyperpressure. A constant relation cannot, however, be deduced from the site and nature of the bone lesions. As regards the sugar content of the cerebrospinal fluid, he found, in the main, normal values, although in some cases there was a diminution, and only in one case an increase. The diminution may possibly be attributed to the sugar-burning action of the blood elements thrown into the cerebrospinal fluid, and to the fact that the determination was made soon after the trauma. The study of the sugar content of the cerebrospinal fluid at later intervals makes it appear probable that in course of time the glycorrhachia increases under the direct influence of the posttraumatic hyperglycemia.

Collateral Cerebral Circulation After Ligation of Large Veins of Neck.—Romeo, in a series of experimental researches on dogs, studied the behavior of the peripheral arterial pressure and of the blood flow per minute, measured on the internal carotid artery, following the ligation of the left common carotid, and then also of the vertebral artery—isolated or associated with the ligation of the jugularis externa and the jugularis interna on the same side. He observed that the ligation of these veins leads in every case to a sensible increase not only of the arterial pressure but also of the blood flow. The increase is, however, a transient manifestation, since, after a time, the hydrodynamic equilibrium of the brain tends to become reestablished, and also the peripheral arterial pressure and the blood flow tend to return to primary values. The experiments performed by the author to show the formation of the collateral cerebral circulation, by injecting a radiopaque mixture into the carotid artery of the side opposite to that of the ligation, demonstrated that in the cases of the simultaneous ligation of the arteries and of the veins the disposition and the development of the arterial network were almost uniform in the two cerebral hemispheres; whereas in the three experiments of isolated ligation of the left carotid artery the corresponding cerebral hemisphere always appeared less injected than the right hemisphere, as was substantiated also in the two animal controls in which the injection of the radiopaque mixture into the right carotid was made without ligation of the left-side vessels.

Riforma Medica, Naples

47: 1395-1432 (Sept. 14) 1931

Undulant Fever and Hemorrhagic Diathesis. C. Cassano.—p. 1395.
*Action of Iodine in Experimental Arteriosclerosis. H. Liebig.—p. 1400.
Traumatic Chylothorax. R. Spaccialbello.—p. 1402.

Action of Iodine in Experimental Arteriosclerosis.—Liebig's researches were on cholesterinic arteriosclerosis in the rabbit, which was induced by a linseed oil-cholesterol mixture. The vascular lesions developed in all the experimental animals, with predominant localization in the aorta. With the weak doses of the special iodine preparation, as at first administered, no modifications in the changed vascular system were brought about. However, with doses of from 50 to 100 mg. of iodine a day, per kilogram of body weight, it was possible to influence the vascular lesions, so that in 75 per cent of the animals either no lesions or no lesions of importance were found. It cannot be stated with certainty as yet whether, and if at all, to what extent, the experimental results are applicable to man.

Archiv für Kinderheilkunde, Stuttgart

94: 81-240 (Sept. 11) 1931

Investigations on Immunobiology of Pneumonia. E. Kramár.—p. 81.
*Significance of Electrocardiography for Prognosis of Diphtheria. P. von Kiss.—p. 97.
Toxicity of Several Ergosterol Preparations. O. Göttche and B. Kellner.—p. 129.
Metabolism of Healthy Infants Fed with Vegetable Milk. Maria Niermann and Margot Winter.—p. 146.
Studies on Pneumonia During Childhood: Pleural Empyema. R. Kochmann.—p. 159.
*Tonsillectomy and Schick Reaction. D. Orosz and G. Kugler.—p. 168.
Diphtheria Vaccinations, Schick Tests and Determination of Antitoxin Titer in Serum. H. Thiele.—p. 175.
Pneumothorax Apparatus with Simple Manipulation for Use in Pediatrics. L. Dobszay and I. Salamon.—p. 202.
Combined Serum and Calcium Therapy in Diphtheria. E. Kaesper.—p. 205.
Polypus on Rim of Choana in Small Child. K. Rupilius.—p. 209.

Electrocardiography for Prognosis of Diphtheria.—Von Kiss maintains that for a correct prognosis in malignant diphtheria and for determining the condition of the heart it is necessary to resort to electrocardiography. However, a single test is rarely sufficient, for only when the examination is repeated is it possible to detect progressive deterioration of the cardiac condition. In patients with diphtheria a dysfunctioning of the heart is indicated by lowered ventricular complexes, by depression of the T and P deflections in at least two leads, by extension of the T deflection, and especially by eventual omission of the T and P deflections; also by disturbances of the Q-R-S complex in at least two leads. If these abnormalities become more marked in the later tests, or if the curve presents the aspects of complete muscular dysfunctioning, the prognosis is usually unfavorable, even when the clinical signs do not indicate a dysfunctioning of the heart. The author gives several case histories and illustrates them with electrocardiographic charts.

Tonsillectomy and Schick Reaction.—In studies on 161 tonsillectomized children, aged between 1 and 6 years, Orosz and Kugler found that contrary to the theory of a relationship between tonsillectomy and the Schick reaction, which was advanced by Tomlin and later corroborated by Schick and Topper as well as by several others, they did not observe any relationship whatever between the two. On the contrary, they observed an increased susceptibility to diphtheria rather than a reduced susceptibility. Neither did the authors find a relationship between the aftergrowth of the tonsils and the behavior of the reaction. They think that the fluctuations in the negativity of the Schick reaction are largely due to the epidemiologic conditions existing at different times, and they think that the results which Schick and Topper ascribe to tonsillectomy may be due to some of these incalculable external factors. The practical conclusions which Schick and Topper arrived at from their theory, namely, to resort to tonsillectomy instead of to immunization, and to test tonsillectomized children before immunization in order not to give superfluous treatment, are likewise rejected by the authors.

Deutsche Zeitschrift für Chirurgie, Berlin

232: 701-792 (Sept. 5) 1931

Bone Transplantation: Experimental Studies and Application in Practical Surgery. S. Orell.—p. 701.
*Traumatic Nephritis. F. Schörcher.—p. 714.
Clinical Aspects of Subcutaneous Injuries of Abdominal Organs by Blunt Force. J. Jáki.—p. 724.
Bacteriologic Investigations on Major and Minor Omentum in Ulcer and Cancer of Stomach. H. Weber.—p. 747.
Distention Ulcer of Intestine (Kocher). Reichel.—p. 758.
Congenital Microcolon. E. Drost.—p. 764.
Chronic Appendicitis. E. Prass.—p. 767.
Evaluation of Modern, Artificial Illumination of Operating Room. Drüner.—p. 769.

Traumatic Nephritis.—Schörcher reports the clinical history of a man in whom bilateral glomerular nephritis developed after a trauma, which the man sustained by a fall over a pole, while ski-running. The nephritis resulted in a contracted kidney. The author further discusses the various conditions that may cause nephritis and also the relations between trauma and nephritis, and he thinks it possible that a trauma may be the only cause of a nephritis. He considers three possibilities in which a traumatic nephritis may develop: by a prolonged spasm of the renal vessels, by formation of nephrotoxins and by a local reduction of the resistance power. It is also possible that all these factors combined lead to nephritis.

Monatsschrift f. Geburtshülfe u. Gynäkologie, Berlin

89: 1-160 (Sept.) 1931

Influence of Inferior Ovaries on Offspring. J. Bondi.—p. 1.
*Fetal Birth Traumas and Their Treatment. S. Liebmann.—p. 14.
*Significance of Retroplacental Blood for Detection of Syphilis. W. Hilden.—p. 32.
*Sure Sign of Hypermaturity in the New-Born. F. Szellö.—p. 35.
Evaluation of Clinical Obstetrics. M. K. Wenzbowsky.—p. 44.
Diseases of Female Genitalia Caused by Bacillus Coli. Becker.—p. 49.
Use of Alcohol Injections in Gynecology in Treatment of Dysmenorrhea, Hemorrhoids and Hypoplasia. R. Hofstätter.—p. 59.
Influence of Pregnancy and of Gynecologic Diseases on Guttadiaphot. Lotte Kürzel.—p. 71.
Physiology and Disorders of the New-Born and of Female Breast. H. Rossenbeck.—p. 78.

Fetal Birth Traumas and Their Treatment.—Liebmann shows that although skull depressions are usually caused by a narrow pelvis, fractures and paralysis are generally the result of extraction by the breach. It is of great significance that the injuries be recognized immediately for, if the proper therapeutic measures are taken, neither the functioning nor the further development becomes noticeably impaired.

Significance of Retroplacental Blood for Detection of Syphilis.—Hilden states that examination of the retroplacental blood always gave the same reaction as the venous blood gave on the seventh day of the puerperium. The result of Wassermann tests made during confinement was found just as reliable as the result of those made at other times. Nonspecific reactions were not observed, and the author thinks that the positive reactions during confinement and puerperium, which later disappear again, are reactions produced by a latent syphilitic infection. The diagnosis of syphilis should never be based on a single positive reaction. Every unexpected positive reaction during birth and the puerperium requires careful after-examination.

Sure Sign of Hypermaturity in the New-Born.—Roentgenologic examination of the wrist joints of the new-born convinced Szellö that those in whom signs of the os capitatum and of the os hamatum are detectable on the first day after birth are hypermature, for ordinarily these bones do not become visible until the second half of the first month of extra-uterine existence. This sign is valuable for forensic medicine, but since it is not detectable in utero it is not of value for determining the advisability of the artificial induction of labor.

Wiener Klinische Wochenschrift, Vienna

44: 1181-1208 (Sept. 18) 1931

Modification of Pressure in Right Ventricle by Respiration. R. Wagner.—p. 1181.
Operative Treatment of Acute, Profuse Gastric and Duodenal Hemorrhages. H. Finsterer.—p. 1185.
Hydropericardium During Hydronephrosis. P. Saxl.—p. 1188.
Form of Endocrine Arthralgia. L. v. Pap.—p. 1189.
*Subungual Tumors. D. Eisenklam.—p. 1192.
Clinical Results of Application of (Sexual) Cycle Hormone. A. Wicke.—p. 1193.
Diagnosis and Therapy of Diseases of Tracheobronchial Tree by the Bronchoscope. F. Haslinger.—p. 1195.
Tumors of Eye with Especial Consideration of Their Treatment. J. Böck.—p. 1199.
Period of After-Treatment Following Malariotherapy of Dementia Paralytica. O. Kauders.—p. 1199.
Pathogenesis of Chronic Inflammation of Gums and Cause of Odontoptosia. B. Gottlieb.—p. 1200.

Subungual Tumors.—Eisenklam points out that subungual tumors of the fingers and toes are often incorrectly diagnosed. Thus many patients have to endure severe pain for prolonged periods, and in other cases the life endangering significance of the tumor is recognized too late. After reporting several case histories he discusses the three types of subungual tumors; namely, the benign, the intermediate and the malignant forms. The benign forms are the exostoses that usually develop in young patients, the subungual fibromas that generally grow slowly and cause little pain, and rare forms such as osteochondromas, papillomas, leiomyomas and myxochondromas. The intermediate forms of tumors usually develop following a trauma. First there is a small blue spot underneath the nail, which causes severe pain. Then a ledge-like protrusion develops in the nail, which by its livid color differs from the rest of the nail. Extirpation reveals a tumor about the size of a pea, which, although situated in a groove of the bone, involves neither the periosteum nor the bone. The surrounding tissues frequently show inflammatory changes, but this form of tumor does not metastasize. Among the subungual tumors of malignant character many resemble fibromas and angiosarcomas, and even the primary malignant melanoblastomas may, in their beginning stages, be mistaken for benign tumors. These growths usually originate in the pigment cells of the skin. Their pathologico-anatomic structure indicates that they are melanocarcinomas. They metastasize rapidly. Of especial interest is the fact that although the primary tumor is not pigmented it causes melanotic metastases. There are also subungual melanoblastomas that develop from a nevus. In the conclusion the author points out that most patients with subungual tumors suffer from intermittent pains. For this reason even the benign tumors should be removed as soon as possible. Especially deplorable are the cases of melanoblastomas that, because the nail, like a foreign body, causes suppuration, are diagnosed and treated as paronychia.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

100: 201-424 (Sept. 11) 1931

*Roentgenologic Aspects of Sterility. G. K. F. Schultze.—p. 201.
Expert Testimony in Alimentation Lawsuits with Consideration of the Undersized Infant. B. Schweitzer.—p. 251.
Hemorrhages During Last Months of Pregnancy. V. Albeck.—p. 257.
Actinomycosis of Ovary. C. Fátyol.—p. 280.
Carcinoma of Vagina: Case. H. Hinselmann.—p. 288.
*Largest Number of Uterine Contractions During Spontaneous Confinement of Multiparas with Pelvis of Normal Width and with Exclusion of Premature Rupture of Bag of Waters. E. Frey and A. Meier.—p. 299.
*Largest Number of Labor Pains in Spontaneous Confinement of Multiparas with Pelvis of Normal Width but with Premature Rupture of Bag of Waters. E. Frey and M. Dressler.—p. 317.
Postclimacteric Hemorrhages of Benign Origin. K. Adler.—p. 343.

Roentgenologic Aspects of Sterility.—Schultze discusses contrast visualization of the female genitalia in its significance for the diagnosis, prognosis and treatment of sterility. First he discusses the roentgenologic aspects of the various obstructions and of other pathologic changes on the uterine tubes, and then the abnormalities of the uterus and of the cervix. In the conclusion he emphasizes that by limiting his treatise to the roentgenologic aspects of sterility he does not wish to overemphasize its significance or advocate its one-sided employment to the exclusion of other diagnostic methods. On the contrary, it should complement the other diagnostic methods, but it is not intended to replace them. In cases in which the cause of the sterility is clear, contrast visualization is not necessary and in other instances it is to be employed only after certain other examinations have been completed. However, in some cases roentgenoscopy reveals conditions that are not detectable by any other method and thus it permits individualization in the treatment.

Number of Uterine Contractions During Confinement of Multiparas.—Observations on 200 multiparas with normal pelvis, and in whom the bag of waters did not rupture prematurely, convinced Frey and Meier that the largest number of uterine contractions during the period of dilatation following rupture of the bag of waters is between 51 and 100. During the period of expulsion, provided the bag is ruptured, the number of contractions varies between 26 and 35. The total number of contractions during both periods following rupture of the bag of waters is between 101 and 150. If therefore in a multipara, following rupture of the bag of waters, the highest number of contractions for each respective phase has been reached without that period of the process of labor being completed, the condition is pathologic, the spontaneous delivery of a living child by the natural process cannot be expected, and an intervention becomes necessary. The authors think that if the labor pains are not counted the indications for the cesarean operation, for instance, are too indefinite.

Number of Labor Pains with Premature Rupture of Bag of Waters.—On 200 multiparas with prematurely ruptured bag of waters and with pelvis of normal width, Frey and Dressler investigated whether for the entire process of confinement and for its phases a maximum number of contractions can be determined within the limits of which spontaneous delivery may be expected without injury of either mother or child. They observed from 151 to 175 contractions for the period of dilatation, from 26 to 35 contractions for the period of expulsion, and for the entire process of delivery from 151 to 175 contractions. The authors think that the management of confinement should be expectant until the highest numbers of contractions have been reached, but after that intervention is necessary.

Zentralblatt für Gynäkologie, Leipzig

55: 2853-2920 (Sept. 26) 1931

*Sterility and Prevention of Conception. H. Knaus.—p. 2854.
*Cohabitation in Etiology of Puerperal Fever. J. Batisweiler.—p. 2858.
Cure of Carcinoma of Vulva by Operation and Irradiation with Subsequent Pregnancy. F. Heimann.—p. 2869.
Reduction of Mortality in Carcinoma of Cervix Uteri. P. Werner.—p. 2871.
Scarlet Fever and Cesarean Section. W. Müller.—p. 2873.
Congenital Malaria. N. Ter-Ossipian and P. Markarian.—p. 2879.

Sterility and Prevention of Conception.—Knaus maintains that in women, just as in most mammals, fertilization occurs at the time of the termination of the ovulation process. In a sexual cycle of several weeks' duration there is therefore a comparatively long period of physiologic sterility. In a healthy woman who menstruates regularly every twenty-eight to thirty days, ovulation takes place between the fourteenth and sixteenth days of the mensual cycle. On the basis of observations the author maintains that in such women the conception capacity is limited to the time between the eleventh and the seventeenth day. During the first ten days, and from the eighteenth day of the menstrual cycle, a physiologic sterility exists. The author thinks that abstinence during the time of the conception capacity is the only natural and also the most hygienic, ethical and esthetic method for the prevention of conception. In women with longer or shorter menstrual cycles the periods of conception capacity and also of physiologic sterility vary somewhat.

Cohabitation in Etiology of Puerperal Fever.—Batisweiler discusses the detrimental results that may be caused by cohabitation during pregnancy. He reaches the following conclusions: 1. During the first half of the period of gestation, cohabitation may cause hemorrhage and even abortion. It is therefore advisable, especially for primigravidas, to abstain from sexual intercourse at least during the first three months. 2. During the second half of pregnancy a too intensive sex life may cause either abortion or premature birth, especially if there is a predisposition for habitual abortion; however, under normal conditions cohabitation is without danger. 3. Toward the end of pregnancy, that is, from six to three weeks before confinement, cohabitation may cause premature rupture of the bag of waters, infection and puerperal fever. For this reason strict abstinence is necessary. 4. A cohabitation after labor pains have already set in may lead to fatal sepsis. 5. Coitus during the puerperium involves likewise the danger of fatal sepsis. Cohabitation should therefore not be resumed until the fourth or fifth week after confinement.

Vrachebnaya Gazeta, Leningrad

Sept. 30, 1931, number 18, pp. 1315-1394

Etiology of Tumors. N. N. Anichkov.—p. 1319.
Function of Blood in Respiration and Physicochemical Laws. G. E. Vladimirov.—p. 1327.
Etiology of Goiter. V. V. Savich.—p. 1332.
Atypical Forms of Epidemic Encephalitis. S. Gorodetskiy.—p. 1336.
*Insulin in Treatment of Pernicious Anemia. A. Yu. Lebedov.—p. 1340.
Acute Rheumatism in Nurslings. S. E. Levintova.—p. 1345.
Decompression by Trephination in Status Epilepticus. A. I. Krapivkin.—p. 1347.
Small Doses of Quinine in Treatment of Malaria. A. A. Solomin.—p. 1349.

Insulin in Treatment of Pernicious Anemia.—Lebedov describes his observations in the treatment of seven persons with pernicious anemia. Insulin was used to increase the appetite; this treatment was followed by a decided improvement in the patient's condition. In instances in which arsenic and iron were ineffective, insulin produced an increase in the percentage of hemoglobin as well as an increase in the number of red blood cells and an improvement subjectively and objectively in the patient's condition. There was no influence on gastric secretion. In the cases in which the spleen was enlarged, the treatment led to a decrease in its size. The effects of insulin lasted not only during but after the conclusion of treatment. Secondary anemia conditions were markedly improved; but in pernicious anemia and in anemia without regeneration of erythrocytes there was a relapse within six months after treatment.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 4751-4878 (Sept 19) 1931

Sleep and Hypnotics. E. D. Wiersma.—p. 4752.
*Auto-Agglutination in Human Blood. J. van der Hoeden and A. G. M. Verbeek.—p. 4767.
Injury to the Eye Caused by a Crystal of Potassium Permanganate. G. W. Wisselink.—p. 4795.

75: 4879-4970 (Sept. 26) 1931

Bronchiectasis. G. J. van Thienen.—p. 4884.
Prophylactic Roentgen Irradiation After Operative Removal of Cancer of Breast. A. E. Nordholt.—p. 4892.

Auto-Agglutination in Human Blood.—Van der Hoeden and Verbeek state that in the serum and plasma of the blood of four patients with hypertrophic biliary cirrhosis, which blood was collected at body temperature (37 C., or 98.6 F.) they demonstrated the presence of a substance that at temperatures below about 25 C. (77 F.) caused auto-agglutination of the erythrocytes. The agglutination at these temperatures is reversible. In the microscopic preparation one observes that the erythrocytes first collect in short chains, which then, as the temperature falls further, are brought together to form larger conglomerates. Through saturation of the serum with suitable erythrocytes at temperatures above 25 C., the iso-agglutinins can be withdrawn, whereas the substance mentioned, which former researchers have termed "auto-agglutinin," remains present unchanged. Not only in the serum but also in the plasma, the auto-agglutinin remains stable in physiologic solution of sodium chloride for at least six months. It stands heating up to a temperature of 60 C. (140 F.) but at 65 C. (149 F.) it is lost. It is not soluble in ether and cannot be passed through a collodion membrane. With saturated ammonium sulphate it is precipitated out of the solution, but not with calcium chloride. It is thus fixed to the globulin fraction of the serum and not to the fibrinogen. The auto-agglutinin is filtrable through a Chamberland-Pasteur candle and a Seitz filter.

Hygiea, Stockholm

93: 625-656 (Aug. 31) 1931

*Liver Extract Suitable for Injection. Selander.—p. 625.
Occurrence of Strain Specific Immunity in Tertiary Malaria and Significance in Fever Therapy. B. Jacobowsky and N. Sahlström.—p. 630.

Liver Extract Suitable for Injection.—In four cases of pernicious anemia in which he used treatment by intramuscular injection of a suitable commercial liver preparation, Selander found the results equal to those following oral administration of liver.

93: 657-688 (Sept. 15) 1931

*Splenectomy in Essential Thrombopenia. Å. Grevilluis.—p. 657.
*Pneumothorax for Diagnosis of Cavern. R. Borelius.—p. 661.

Splenectomy in Essential Thrombopenia.—In Grevilluis's case of essential thrombopenia with rather acute course, with massive nosebleed as the main symptom, and with internal therapy ineffective, splenectomy, done at a stage when the patient was greatly exhausted, resulted in an immediate recession of all symptoms and after a couple of months the number of blood platelets was normal.

Pneumothorax for Diagnosis of Cavern.—Borelius presents two cases in which artificial pneumothorax, induced for diagnostic purposes, showed that a roentgenologically indistinct circular shadow was a cavern, and four cases in which pneumothorax, induced for therapeutic purposes, revealed the presence of caverns previously suspected or not visible. The result is due, he says, to the greater prominence after pneumothorax of the formerly indistinct circular shadows and to the shifting of the shadows, usually toward the hilus. This change of position constitutes the strongest evidence for an intrapulmonary (and not pleural) process. Since the pneumothorax is not wholly without danger, it is advised only when other methods fail, and it should not be applied in ambulant cases.

Nordisk Medicinsk Tidskrift, Uppsala

3: 561-576 (Sept. 5) 1931

Review of Toxicology of Use of Tobacco and Some Related Questions. Ulf v. Euler.—p. 561.
Has Tuberculosis Infection in Childhood Ever Been Generally Widespread? J. Heimbeck.—p. 567.
Remarks on Professor Holmdahl's Article "Tuberculosis and Crusade Against Tuberculosis." Sig. Magnusson.—p. 573.

3: 577-592 (Sept. 12) 1931

Virulence of B C G. K. A. Jensen.—p. 577.
*Problem of Pathogenesis in Megacolon. E. Ask-Upmark.—p. 581.

Problem of Pathogenesis in Megacolon.—Ask-Upmark concludes that the importance of mechanical obstruction in the pathogenesis of megacolon seems to have been exaggerated, while the conception of megacolon as a primarily congenital condition may have been undervalued. Morphologic malformation and functional abnormality in the neuromuscular apparatus of the intestine are regarded as important factors in the pathogenesis of megacolon.

3: 609-624 (Sept. 26) 1931

*Studies on Gastric Ulcer, Particularly with Regard to Nervous Symptoms. B. A. Boye.—p. 610.
Bronchial Asthmas, Illustrated by Invalidity Insurance Commission's 625 Cases. I. H. C. Gram.—p. 616.

Studies on Gastric Ulcer: Nervous Symptoms.—Boye's material comprises 937 cases of ulcer, partly established cases, partly cases with probable diagnosis of ulcer (about one third). He finds that the proportionate frequency of the condition in men and women is as 3 to 2. In both sexes the subjective symptoms, including nervous symptoms, show a tendency to increase as the objective ones decrease. In the group with numerous objective symptoms, men dominate; in the group with few objective symptoms, women. Nervous symptoms are common, especially in women.

Upsala Läkareförenings Förhandlingar, Uppsala

37: 1-213 (Sept. 21) 1931

*Septic Pleural Empyemas with Especial Regard to Late Results. E. Schildt.—p. 2.
*Case of Endometrioma with Localization in Round Ligament of Uterus. H. Marcus.—p. 207.

Septic Pleural Empyemas: Late Results.—Schildt reports 289 cases, without complications in the form of tuberculosis, actinomycosis or tumor, in which the patients were treated from 1916 to 1929. There was marked increase in the number of cases of empyema during the influenza years. About 50 per cent of the cases occurred in the first twenty years of life and about 70 per cent in the first thirty. Over 61 per cent were in the male sex. Etiologically about 85 per cent of the cases are ascribed to certain or probable pulmonary diseases. Streptococcus infection was the most frequent infection. Typical complications of empyema appeared in fifty-nine cases, with fatal outcome in about 60 per cent. Subperiosteal resection of the ribs or intercostal incision with open drainage was the chief method of treatment. After-examination was done in over 95 per cent of the cases. Permanent recovery for from more than one to over fourteen years was seen in 178 cases, or about 61.5 per cent of the total number. There was recurrence in 32 cases, or about 11 per cent, appearing within four years in 97 per cent of the cases; no recurrence was noted after five years. There were fifteen chronic cases, or about 5 per cent. Restored full ability to work after six months was seen in 80 per cent of the 178 cases. The total mortality was 18.6 per cent.

Endometrioma with Localization in Round Ligament.—Marcus's patient had had for two years a slowly increasing swelling in the right groin, without symptoms except a sense of weight and tension on menstruation. Examination showed a tumor-like formation of firm consistency about 3 or 4 cm. long and of the thickness of the little finger, situated corresponding to the course of the round ligament and attached to the pubic bone. The microscopic diagnosis following extirpation was adenomyofibrosis.

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NEUROPSYCHIATRIC COUNTERFEITS OF ORGANIC VISCERAL DISEASE *

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Visceral disease may be masked by a variety of neuropsychiatric manifestations. Patients may present themselves with pains referred to the extremities and the trunk, especially with sciaticas and backaches, bearing the earmarks of nerve or cord involvement, but which are due to underlying visceral disease. More frequently there are patients referred as "psychoneurotic" in whom the outstanding symptoms are emotional and whose numerous bizarre and variable complaints cannot be explained by objective organic phenomena. Even more commonly a combination of peripheral pains and psychoneurotic manifestations are encountered forming a bewildering clinical picture difficult to disentangle. Psychotic states may conceal underlying visceral disease and may be the earliest manifestation of visceral disease, as in the four cases of pancreatic tumors reported by one of us.[1]

The following are illustrative cases in which patients with unrecognized somatic disease were referred to the neuropsychiatric service as presenting neurologic conditions. These cases were divided for descriptive purposes into cardiac, pulmonary, gastro-intestinal, genito-urinary and sciatic groups.

THE CARDIAC GROUP

That psychic factors, especially emotional, should influence cardiac action is not surprising when it is borne in mind that, like the gastro-intestinal tract, this organ has a rich sympathetic and parasympathetic innervation and that the vegetative system is under the control of the nervous system. In addition, Cannon[2] has shown that under the influence of emotions there is a chemical alteration in the epinephrine content which is particularly prone to influence the accelerators of the heart. Cardiac disturbances of emotional origin are therefore of great frequency, and neurocirculatory asthenia, a disordered heart action of the soldier, is a common symptom. Parenthetically, cardiac neuroses are often a result of careless, sometimes casual, remarks on the part of the examining physician, a fact worth while remembering, for it is much easier to create than to cure these "cardiac" cases.

On the other hand, cardiac diseases often have psychic components which should be borne in mind. The occurrence of transient and more or less lasting psychotic episodes (mood changes, suspicions, hallucinations) in the course of heart disease was studied by Head,[3] who attributes these symptoms to pain reflected from the diseased viscus. Cardiogenic psychoses with a variety of psychotic pictures have been described by Riesman,[4] who attributes the psychoses to a variety of causes including the psychopathic make-up of the patient, toxemia of the kidney, acidosis, drugs especially digitalis, and disturbances of cerebral circulation.

Behavior disorders attributable to restricted activity, imposed by cardiac disease in adults and especially in children, are of interest and are discussed by Foster.[5] Psychoneurotic complaints may be readily conceded to a frank cardiac case as being at least distantly related to cardiac dysfunction. By frank cardiac cases we mean patients with valvular lesions, disturbances of rate and rhythm, blood pressure changes, mild evidences of decompensation and the like. The situation is entirely different with the so-called myocarditides. Here the evidences of cardiac disease, even in the hand of experienced internists, are slim and often doubtful. The vague "anginoid" pains over the anterior chest wall and in the arms are much more conspicuous than the objective signs. Often these pains are only a small portion of the pains, aches and mood disturbances which dominate the picture. Thus these patients, with the condition formerly called "pseudo-angina pectoris," become psychoneurotic and are referred to the neuropsychiatrists for psychotherapy.

Case 1.—J. F., a man, aged 56, a merchant, seen, Oct. 14, 1924, complained of severe cramplike pain in both arms, forearms and hands. These pains commenced several hours previously, following a quarrel with a son. The family history and past medical history were negative; the patient had typhoid in his youth, smoked cigars and a pipe in moderation, and indulged mildly in alcohol. He was "highly strung" but there was no history of a "nervous breakdown."

The patient was somewhat short and slim, and presented no evidences of somatic or neurologic disease. His pulse rate was 76, the blood pressure was 140 systolic and 105 diastolic, the heart was not enlarged, no murmurs were audible, and the heart sounds were good. Neurologic examination revealed no disturbances in motor, reflex, synergic or sensory control.

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* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Yaskin, J. C.: Nervous Symptoms as Earliest Manifestations of Carcinoma of the Pancreas, J. A. M. A. **96**: 1664 (May 16) 1931.

[2] Cannon, W. B.: Bodily Changes in Pain, Hunger, Fear and Rage, New York, D. Appleton & Co., 1929, pp. 1-192.

[3] Head, Henry: Certain Mental Changes that Accompany Visceral Disease, Goulstonian Lectures for 1901, Part III, Brain **24**: 345, 1901.

[4] Riesman, David: Acute Psychoses Arising During the Course of Heart Disease, Am. J. M. Sc. **161**: 157 (Feb.) 1921.

[5] Foster, N. B.. Psychic Factors in the Course of Cardiac Disease, J. A. M. A. **89**: 1017 (Sept. 24) 1927.

There was no tenderness over the nerve trunks. He was restless, unable to remain in bed and screamed and cried. Bromides and barbital were administered, and the following morning he returned to work.

Within a few days there was a recurrence of pain in both extremities which also yielded to sedative agents. Within a couple of weeks, however, the patient complained of dyspnea and precordial oppression. About November 1 he developed a bilateral hydrothorax, which was tapped, affording the patient considerable relief. November 4, when the nurse returned after the absence of a few minutes, the patient was dead.

The character of the subjective manifestations as well as the marked neurotic phenomena certainly justified regarding this patient as psychoneurotic. In retrospect, the pains and emotional disturbances masked a pronounced case of myocardial degeneration.

Case 2.—A. S., a woman, aged 52, referred in June, 1929, complained of general weakness and nervousness and inability to walk because of weakness and pain in the back. The family history and past medical history were irrelevent. Although "highly strung," she had never had a nervous breakdown. Her present illness began several months previously with generalized pain and nervousness, especially pain in the eyes. In February, 1929, she was studied for two weeks in a teaching hospital, where the investigations failed to reveal organic disease. In the past few weeks her condition became much worse. She was unable to walk about because of weakness in the back. When seen at her home, the patient looked thin, pale, anxious and unwilling to move out of bed. The internist who referred the patient gave the assurance that his studies and those made in the hospital excluded somatic disease. Neurologic examination revealed a pseudoptosis of the left upper eyelid and inability to raise the right arm because of pain in the shoulder. She refused to leave the bed or even to sit up. A psychologic examination revealed that she was distressed over two unmarried daughters who were rather promiscuous in their mode of living. She cried and was anxious and depressed. The patient was hypnotized without difficulty, and in ten minutes walked out of bed much relieved. She returned several times for treatment, showing improvement, with the exception of "fainting spells" with partial loss of consciousness, which were attributed to emotional upsets.

July 2, the patient suffered a fainting spell. She was motionless, with an ashen gray face and blue lips and finger nails. Her extremities were cold, she perspired profusely, the pulse rate was rapid and feeble, and the heart sounds were poor. There was no pulmonary edema. She rallied with digitalis and caffeine and was admitted to the Graduate Hospital. She had several similar attacks while in the hospital. During one of them the blood sugar rose to 260 mg. per hundred cubic centimeters, while between attacks the blood sugar was under 100. She died, July 5, during one of these attacks. The cause of death was assigned to coronary occlusion.

The psychogenic background, the bizarreness of the symptoms, the absence of objective signs after intensive study and the favorable reaction to hypnosis all favored a diagnosis of psychoneurosis. However, the basic manifestations were undoubtedly attributable to myocarditis.

PULMONARY GROUP

Pulmonary disturbances of psychogenic origin are not nearly as common as those of the gastro-intestinal or cardiac systems. Nevertheless, cough, disturbance of rate and rhythm of respiration, and even asthma may be of functional origin. The fear of tuberculosis in some cases is one of the commonest manifestations of psychoneurosis. Nevertheless, psychogenic causes of pulmonary manifestations are relatively rare. Whether they may be due to relatively poorer innervation by the vegetative system and relatively richer somatic innervation (abdominal walls, intercostal muscles, parietal pleura) in comparison to other viscera is difficult to state and requires further investigation.

That pulmonary disease, especially tuberculosis, may cause mental symptoms is well known. Head[3] ascribes it in part to reflex pain referred from the diseased viscus and partly to the fever, loss of weight and anemia. The general clinical conception is that the mental symptoms in these cases are toxic in origin. Head points out that lesions in the upper part of the chest are not as likely to cause mental changes as lesions in the basal lobe. We feel that this is not due so much to the reflected pain from the lower lobe, as claimed by Head, as to the fact that when tuberculosis invades the lower lobe the case is usually more advanced and the patient more toxic.

There are cases in which neuropsychiatric manifestations mask underlying pulmonary pathologic changes. Among these may be mentioned early pulmonary tuberculosis especially in late adolescence, and carcinomatosis.

Case 3.—A woman, aged 39, seen, Feb. 1, 1928, had developed, eight years previous to admission to the Orthopedic Hospital, a pelvic peritonitis two months after the birth of a second child, following which there was a removal of her uterus, tubes and ovaries with the establishment of a complete surgical menopause. *Following this she began to have attacks of nervous* exhaustion, which were ascribed to the consequences of the operation and to certain domestic difficulties. Three months prior to her admission, the patient was in an automobile accident in which she suffered a concussion following a blow on the head. At the time of the accident, she remembered taking a deep breath, and following her recovery from the concussion for a period of three months she complained of difficulty in getting her breath and of pains across her shoulders. This was followed by severe crying spells, considerable mental depression and general exhaustion, in which the patient felt unable to do her usual housework. Her respiratory difficulties were much worse whenever she became emotionally upset. In addition, she complained of a gripping feeling in her throat and she had a tendency to cough to get rid of it. She had to use two pillows instead of one when lying in bed.

On admission she had a constant dull aching pain over the scapula. At times this became more severe and would shoot and radiate down the left flank and around the chest to the left breast. On admission to the hospital this was her chief complaint, and it was thought that all her symptoms were of a psychoneurotic character and had been present a long time but had been aggravated by the automobile accident. After her admission the pains increased and in addition she began to complain of nausea and vomiting. While under observation she developed a weakness and numbness in the right upper limb, but physical examination did not denote anything. Later on, a roentgen examination showed that she had a primary carcinoma of the lung. Following this she developed an increasing weakness in the right side, which developed into a right hemiplegia. This was followed by generalized convulsions, limited mostly to the right side, and the patient finally died of multiple carcinomas of the brain.

The diagnosis in this case was particularly difficult in the beginning because of the history of the old neurosis with the more recent one of trauma following an automobile accident in which the question of compensation entered. The medical man who referred her was undoubtedly swayed by this history and on her admission to the hospital we also felt that the case might be one of traumatic neurosis. It was, however, the character of the pains, which were of a rootlike variety, that first directed our attention to the possibility of the presence of a spinal cord involvement. Roentgen examination disclosed the presence of the carcinoma and the later symptoms were so outstanding that there was no doubt left as to the proper diagnosis.

CASE 4.—E. B., a woman, aged 24, a trained nurse, who had graduated two years prior to observation, complained of general nervousness, inability to sleep, depression and slight loss of weight. She was easily exhausted. She had been nursing a psychasthenic patient and these symptoms developed after she had been on duty for about six months. She gave up the case because she felt that it was too much for her and ascribed all her symptoms to a neurosis brought about by the mental and physical fatigue attendant on the nursing of this difficult patient. General examination was entirely negative. No examination was made of the chest. It was obvious that the patient was psychoneurotic and we agreed with the idea that all she needed was rest; she was sent home to recuperate. The patient came back in about three months feeling much worse. She had lost considerable weight. She began to complain of night sweats, and examination showed the general symptoms of an early tuberculosis. This was confirmed by a roentgenogram and an examination of the chest.

This is a typical example of how a neurologist can slip up in a diagnosis of an early tuberculosis by assuming that the neurotic symptoms are of a generalized character. The later history of this patient, who was put on a suitable treatment, showed the complete disappearance of the symptomatology as the condition of the chest improved.

GASTRO-INTESTINAL GROUP

That gastro-intestinal disturbances may be purely psychogenic in origin is a common experience, and "nervous dyspepsia" has been handed down from ancient times. The gastro-intestinal tract, by reason of its innervation by the vegetative nervous system, remains out of the sphere of consciousness as long as there is no disturbance in this long tract or in the various pathways connected with the involuntary nervous system. But the functions of this system are readily influenced by the psychic processes as shown by the experimental work of Cannon[2] and by the clinical observations of Alvarez,[6] Ziegler,[7] McLester,[8] and many others. The digestive disturbances in relation to disease of the spinal cord, as in tabes and transverse myelitis, are well recognized and the close connection with the diencephalon, as in epidemic encephalitis, is at least debatable.[9] Diseases of the autonomic system itself (autonomic unbalance) are regarded as a predisposing factor in organic gastro-intestinal disease such as peptic ulcer and cardiospasm. On the other hand, the improved methods and more intensive studies in gastro-enterology in recent years have demonstrated that many cases of "nervous dyspepsia" are organic in nature. It is found that many mild lesions or slight secretory and motor disturbances give rise to a variety of neuropsychiatric symptoms which mask the underlying pathologic changes. That marked gastro-intestinal disturbances give rise to reflected pain and other disturbances was shown by Head,[10] who demonstrated that the pain reflected to the cutaneous surface from diseased viscera was to a large extent responsible for the mental symptoms observed in some cases, and that pain reflected to the abdomen was more closely associated with psychic disturbances, especially depression, than pain reflected to the upper part of the trunk. Head found this to be the case in individuals with a negative family and past medical history. He ascribed the psychic disturbances to involvement of the vegetative nervous system—the abdomen being, in the words of James,[11] "the sounding board of the emotions." One can readily conceive how relatively mild gastro-intestinal lesions may, in an individual with a neurotic make-up, produce a variety of emotional disturbances in keeping with Head's conception, which would mask the original abdominal complaints. That the superimposed neuropsychiatric manifestations may disguise the underlying organic condition is shown by the following cases:

CASE 5.—M. F., a man, aged 44, a merchant, seen in March, 1924, complained of insomnia, dizziness, nausea and vomiting, general weakness, and loss of weight. He was under observation in two general hospitals, at which times no organic disease was found. His family history and past medical history were irrelevant. He was a widower and had a great deal of trouble with his children. He was treated as a psychoneurotic patient at the Orthopedic Hospital, where, in a few months, he completely recovered. He remained in good health until September, 1927, when he returned, complaining of attacks of headache, dizziness, general weakness and insomnia, attributing these difficulties to business reverses and unpleasant differences with his son-in-law. Although he had been ill for only a few weeks, he appeared pale and, when questioned closely, showed a slight difficulty in swallowing. The roentgen examination was inconclusive but esophagoscopy by Dr. Gabriel Tucker established the diagnosis of carcinoma of the esophagus. Despite the suffering incident to the lesion and the treatment, his neuropsychiatric symptoms during the remaining fifteen months of life were not so pronounced as during the attack of three years previously.

In this case the organic lesion occurring in an individual with a psychoneurotic make-up and with a previous psychoneurotic episode would have been easily overlooked were it not for the close questioning in the case and the existence of a slight secondary anemia.

CASE 6.—J. L., a woman, aged 37, married, with an irrelevent family and past medical history, was referred to the neurologic clinic of the Orthopedic Hospital in October, 1927, as a case of gastric neurosis. She complained of nervousness, loss of weight, and palpitation of the heart, with considerable epigastric pain, which was somewhat relieved by food. She was studied at the hospital with the following observations:

The gastric analysis showed only a moderate degree of hyperchlorhydria. The roentgenogram of the gastro-intestinal tract was entirely negative. There was extreme tenderness in the epigastrium, with marked rigidity of the upper part of the right rectus muscle. Despite the extreme nervousness and relatively negative roentgen observations, an exploratory operation was advised. This was done by Dr. George Muller at the university hospital, and a large ulcer was found on the posterior wall of the stomach, not involving the pyloric region, and therefore producing no demonstrable filling defect. Following a gastro-enterostomy, she gained 20 pounds (9 Kg.) and was entirely relieved of the symptoms.

This woman had been referred as a psychoneurotic patient; superficially, she might easily have been regarded as such. Despite the negative laboratory observations, however, a careful history and the constant abdominal pain with rigidity in the upper part of the abdomen led to the unmasking of the true condition.

CASE 7.—P. S., a man, aged 45, a clothing operator, had been treated by one of us from 1919 to 1924. His family history was negative. The patient had the usual complaints of general weakness, fatigability, abdominal pain and repeated attacks of dizziness. He had frequent attacks of indigestion, which apparently had no reference to meals and were unaccompanied by nausea and vomiting, but there was marked constipation. The entire attitude of the patient was that of pronounced psychoneurosis. He showed improvement with a bromide treatment, suggestion and persuasion, gaining and losing weight depending on his emotional state. He had occasional fainting spells, frequently caused by emotional stress. In April, 1924, he had one of these attacks and his physician was summoned. There was also a history of an argument with the foreman in the shop in which he was employed, after which he fainted. His wife casually remarked that the patient had had a bowel movement which was black. Examination revealed that it was melena, and the patient was admitted to the university hospital without delay. A roentgen examination within a few days revealed a duodenal ulcer, and, at an operation by Dr. I. S. Ravdin, he was found to have a hard mass in the region of the duodenum. He died a few weeks later of metastases of carcinoma of the duodenum.

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[6] Alvarez, W. C.: Ways in Which Emotions Can Affect the Digestive Tract, J. A. M. A. **92:** 1231 (April 13) 1929.

[7] Ziegler, L. H.: Clinical Phenomena Associated with Depressions, Anxieties and Other Affective or Mood Disorders, Am. J. Psychiat. **8:** 849 (March) 1929.

[8] McLester, James: Psychic and Emotional Factors in Their Relation to Disorders of the Digestive Tract, J. A. M. A. **89:** 19 (Sept. 24) 1927.

[9] Kantor, J. L.: Neurogenic and Psychogenic Disorders of the Alimentary Canal, J. Nerv. & Ment. Dis. **70:** 28 (July), and 179, (Aug.) 1929.

[10] Head, Henry: On Disturbances of Sensation with Especial Reference to the Pain of Visceral Disease: part I, Brain **16:** 1-134, 1893, and part II (Head and Neck) ibid. **17:** 339-480, 1894.

[11] James, William: Principles of Psychology, New York **2:** 449-454, 1927.

This man undoubtedly had an organic lesion that had not been carefully investigated. The symptoms yielded to psychologic treatment until malignant degeneration set in and the organic manifestations became evident.

Case 8.—J. B., a man, aged 38, a fireman, with a marked psychopathic family history, when first seen in May, 1928, complained of attacks of precordial distress, dyspnea, anxiety and pronounced nervousness. He had been examined by police surgeons at the fire-house on two or three occasions, and the case was diagnosed as "hysteria." Between attacks, he seemed to have been in fairly good health excepting for somewhat increased fatigability. The patient was rather undersized though fairly well nourished and weighed 135 pounds (61 Kg.). The size of the heart was within normal limits, the pulse rate 96, the blood pressure 166 systolic and 70 diastolic. There was no exophthalmos and no von Graefe sign. The thyroid was slightly enlarged. The abdomen was soft and somewhat tender around the umbilicus and just to the median line of the right lower quadrant. The patient was admitted to the Policeman's and Fireman's Ward at the Philadelphia General Hospital, where all examinations, including a complete gastro-intestinal study, were entirely negative. However, from observation over a period of months, it was felt that his attacks were due to a mechanical cause, probably abdominal in location. A laparotomy was performed (Dr. Hubley Owen) and an extremely long appendix, extending from the retrocecal region to the retrohepatic region, was found and removed. The patient made an uneventful recovery, returning to duty within eight weeks.

He remained in good health until the spring of 1926, when he developed pronounced anxiety, restlessness, insomnia, loss of appetite and weight, and feared such things as going out into the street. At this time there had been a great amount of worry due to illness and domestic discord within the family. At the Orthopedic Hospital careful studies failed to reveal organic etiology and within a few months he recovered from an anxiety neurosis, returning to active duty in the fire bureau, where he has been ever since.

At the time of the attack in 1923, the patient was regarded as definitely psychoneurotic. However, he appeared to be in fairly good health between attacks. There was no psychogenic background, and on examination it was felt that there was visceral difficulty to account for his trouble. This was verified both by the operative observations and the subsequent recovery. The second episode, in 1926, was associated with definite psychogenic factors, and in addition the character of the symptoms was such that they bespoke very clearly their psychologic nature.

Case 9.—H. R., a man, aged 42, a broker, came to Philadelphia in September, 1927, complaining of nervousness, insomnia, restlessness, loss of appetite and vague abdominal discomfort, not related to the intake of food. The condition was gradual in onset and of about four months' duration. Family and past medical histories were irrelevant. The family ascribed the trouble to financial reverses, and his wife insisted on Christian science treatment. Physical examinations and laboratory investigations made in Boston and repeated in Philadelphia disclosed no positive finding excepting a mild secondary anemia; roentgen examination revealed no abnormalities. A psychiatric examination disclosed a mild anxiety state without definite depression and a persistent, gradually increasing complaint of abdominal discomfort with very little emotional coloring. An exploratory laparotomy was advised, and an operation in October, 1927, by Dr. Michael Warmuth revealed carcinomatosis of the peritoneal cavity with the primary lesion in the small intestine.

A careful analysis of the case, negative family and past medical histories, the gradual onset of the abdominal discomfort, the secondary character of the nervous symptoms, and especially the character of emotional reaction, aroused the suspicion of primary visceral disease. Despite negative physical and laboratory examinations an operation was advocated.

Case 10.—J. L., a man, aged 37, a knitter, was referred by the genito-urinary clinic because of sharp shooting pain in the perineum, of several months' duration. Complete genito-urinary studies, including catheterization of both kidneys, revealed no abnormalities or disease of the spinal cord, and a neurosis was suspected. Neuropsychiatric studies revealed no evidence of organic neurologic disease, nor was there evidence of neurosis. A rectal examination revealed cryptitis and internal hemorrhoids. An operation gave complete relief within a few days.

In this case, the very absence of neuropsychiatric symptoms bespoke the existence of visceral disease.

Case 11.—F. H., a boy, aged 12 years, in September, 1922, suddenly developed epileptiform convulsions. He was studied most carefully from every angle, having been under close medical observation since childhood, owing to the fact that his was a case of asymmetrical development of the limbs without paralysis or evidence of asymmetrical cranial development. A few months after the first convulsions acute appendicitis developed and he was operated on, but the removal of the appendix failed to prevent the recurrence of the convulsions. A complete study of the cranium and accessory sinuses by Dr. G. E. Pfahler was entirely negative. A comprehensive gastro-intestinal study showed some evidence of cecal stasis, thought to be due to postoperative adhesions. Operation revealed only a few minor filmy bands, which were not considered sufficient to produce symptoms of obstruction but were removed. The convulsions returned with moderate severity but this time the patient's mother made the observation that they were always coincident with drinking milk. Exclusion of milk from the boy's diet was followed by a complete recovery, and there has been no recurrence of the convulsions since June, 1924.

This appears to be a true case of protein anaphylaxis with epileptiform convulsions. Such cases have been reported by Ward and Patterson.[12] While anaphylaxis cannot be regarded as a visceral disease, it was deemed advisable to bring it into relation with neuropsychiatric counterfeits.

GENITO-URINARY GROUP

Pain over the bladder region, painful and frequent urination, impotence, premature ejaculation and failure of erectile power are frequently of psychogenic origin. This is not difficult to understand when it is borne in mind that the pelvic organs are innervated to a great extent by the involuntary nervous system—the lumbar sympathetic and sacral autonomic—and that these are subject to segmental and suprasegmental—cortical and subcortical innervation [9]—and therefore by psychic and especially emotional states. The pudendal nerve—the somatic component—innervates largely the external sphincter and the pelvic floor. There is still another reason why these organs are a favored seat of neurotic expression: the sex development, in a broad sense, intimately conditions the development of the entire personality, and many disturbances in the latter show a tendency to "fixation" at the genital level. Feelings of inferiority, self accusation and depreciation have a tendency to manifest themselves by pelvic symptoms. Therefore, pelvic symptoms, common not only in the psychoneuroses but also in the psychoses, are evidences of regression.[13]

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[12] Ward, J. F., and Patterson, H. A.: Protein Sensitization in Epilepsy, Arch. Neurol. & Psychiat. 17: 427 (April) 1927.

But pelvic symptoms due to structural changes in the bladder and genitalia may be accompanied by a great many complaints not related to these organs, and by their bizarreness and variability may be of definitely psychoneurotic or psychotic nature. In these cases, the underlying pathologic condition may be easily overlooked, as in the following case:

CASE 12.—J. H., a man, aged 43, a laborer, was referred by Dr. Jacob Makler to the Neurologic Clinic of the Graduate Hospital in May, 1930, complaining of insomnia, nervousness, a feeling of despondency, inability to concentrate or to work, loss of weight, pain in the hypogastrium, frequency of urination, and impotence. The condition commenced about six months previously with distress in the bladder and frequency in urination, following some emotional disturbance incidental to marital difficulties. The patient had never observed blood in the urine, and several physicians had told him that he was nervous. His father committed suicide at the age of 52; otherwise his family and past medical histories were unimportant. Objectively, the patient was moderately well developed and nourished. General physical and neurologic examinations were normal. He appeared much older than his actual age, was very depressed, talked in an undertone, and ascribed his difficulties to a venereal disease which he thought must have been contracted in his youthful days. The somatic complaints and the depression led us to suspect an involution psychosis. The blood Wassermann reaction was negative. He was referred to the genito-urinary department but discontinued attending the clinic. The following subsequent report was obtained from his family physician, Dr. Makler. He went to the genito-urinary department of another hospital, where carcinoma in the urinary bladder was found. He was operated on at the Philadelphia General Hospital and succumbed shortly thereafter.

From a psychiatric standpoint, this case was clearly one of involution psychosis. A careful chronological study, however, directed attention to the genito-urinary tract as the immediate causative factor in his condition.

THE SCIATIC SYNDROME

The "sciaticas" require at all times an etiologic diagnosis. This was recently reemphasized by Grossman and Keschner,[14] who call attention to the fact that sciaticas often mask bony changes in the pelvis or neoplastic conditions around the spinal cord. It may be well to call attention to the fact that sciatic pain may be the only evidence of intrapelvic disease, as illustrated in the following case:

CASE 13.—M. S., a woman, aged 43, with irrelevant family and past medical histories, complained in 1920 of recurrent attacks of pain in the left foot for two years. The pain was sharp and shooting in character. It often appeared after retiring at night and became progressively greater in frequency. A number of doubtful teeth were removed without relief. Neurologic examination was negative. A pelvic examination by Dr. J. C. Hirst revealed a hitherto unrecognized small fibroid tumor attached in the neighborhood of the left cornu uteri. A hysterectomy (St. Agnes Hospital) resulted in permanent relief.

No diagnosis of sciatica is justifiable without a complete and often repeated pelvic study. The following case illustrates this point from another angle:

CASE 14.—G. K., a man, aged 35, a broker, in August, 1929, complained of pain in the back and in the right thigh and leg. When he was a child he had had occasional pains in the back, causing incapacitation for several weeks at a time. At times he was free from pain for a period of months and even years and actively engaged in outdoor sports. About one and one-half years before observation the pain became much worse, following a strenuous game of handball. Since then he had had great discomfort. The pain was located chiefly over the region of the right sacro-iliac joint, radiating into the hip and leg. It was dull in character but not influenced by weather, coughing or sneezing. The pain improved with rest and the application of heat. There was no history of any important illness or injury. He stated that he had not had venereal disease. A tonsillectomy had been performed three years before. He did not indulge in alcohol.

The patient was well built and well developed muscularly. His back was symmetrical, other than a slight drooping of the left shoulder. His spine was in the midline and there was no deviation or rotation. There was, however, a moderate increase in the lumbar curve, which was explained by the moderately protruding abdomen. There was no definite muscle spasm. The motions of the spine were free and unrestricted, causing no discomfort. There was no pain on pressure throughout the spinous processes, lumbosacral region, sacro-iliac joints or along the course of the sciatic nerve. Anteriorly, the chest was symmetrical and the abdomen protruding. All signs for sacro-iliac derangement were negative.

A neurologic examination revealed no evidence of organic disease. The Lasègue sign was negative. The Achilles jerks and knee jerks were equal and prompt on both sides. A roentgenogram of the teeth was entirely negative. Prostatic examination, by two genito-urinary specialists, revealed no evidence of pus. The orthopedic examination confirmed the observations, and baking and massage were advised. This, however, did not relieve the patient.

About six months ago he came in with the following story: Without any apparent cause, he developed a purulent urethral discharge which on examination was found to be a mixed staphylococcus infection. A few days after discharge, the patient was entirely free from pain in the sacro-iliac region and along the sciatic nerve. The urethral discharge continued for several weeks, during which time the patient was symptom-free. It ceased, and there was a return of the pain in the back and leg. With subsequent massage and use of autogenous vaccine, his symptoms subsided entirely.

In neuritides, a search should always be made for focal infections. Often it is not sufficiently persistent or is incomplete.

COMMENT

This presentation would be of little use if it could not answer, or attempt to answer, two questions: (1) Why were these errors made and (2) What general principles should be followed to avoid similar mistakes?

1. Regarding the first question, several factors come into consideration. The first of these includes faulty and incomplete examinations. Some cases are referred with the assurance that no organic disease exists and the correctness of such observations is assumed without adequate check-up (cases 2, 3, 6, 9 and 10). Many organic conditions, such as the "myocarditides" and carcinomas of abdominal organs, fail to reveal, in the early stages, trustworthy organic manifestations (cases 1, 2, 6, 9 and 13). In some cases the underlying causes, such as some focal infections, are illusive and difficult of demonstration. In others, unwillingness and

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[13] Freud, Sigmund: A General Introduction to Psychoanalysis, translated by G. Stanley Hall, New York, Boni and Liveright, 1920, p. 295.

[14] Grossman, Morris; and Keschner, Moses: The Sciatic Syndrome, Arch. Neurol. & Psychiat. **21**: 398 (Feb.) 1929.

incooperativeness preclude suggested investigation. A second factor is the assumption of the presence of a psychoneurosis because of the richness, bizarreness and variability of "functional" symptoms, which make further investigations seem unnecessary (cases 1, 2, 3, 4, 5, 7 and 12). A third factor is the assumption that the present symptoms are merely a variation of a former reaction to a psychogenic situation (cases 1, 5, 7 and 8). In the second and third factors not only a great deal of care but also much judgment must be exercised.

2. To avoid such errors as those just quoted, the following formulation seems justifiable in the practice of neuropsychiatry:

(*a*) Every case should be considered from the standpoint of personality make-up with reference to heredity, early development, school and vocational records, sexual and marital factors, social and economic adaptability, and the individual's reaction, at various periods, to environmental conditions. The latter includes disease, injury, and mental and physical storms.

(*b*) A careful history, especially the chronological development of the symptoms, should be obtained from the patient. The assistance of relatives and friends may be needed. Additional valuable information is frequently obtained in reexamination.

(*c*) Every case should receive a complete somatic as well as neurologic examination. Every neuropsychiatrist should be sufficiently well trained to do this and in every case urinalysis, complete blood count, blood chemistry and blood Wassermann tests should be made.

(*d*) No special examination should be made until the neuropsychiatrist has obtained a view of the total situation—of the formulation as to what possible physical and psychic changes are present in the patient with the particular make-up. This requires a psychologic evaluation of the case—a difficult and often time consuming method.

(*e*) Every one seems to agree that no case should be diagnosed as psychoneurosis until all indicated investigations are completed. Some insist that a diagnosis of psychoneurosis should always be one of exclusion. This, like blind faith in laboratory procedures, has its disadvantages: in some cases certain avoidable surgical procedures, especially in the nasopharynx and abdomen, only tend to accentuate the already existing vicious circle; and, lastly, it is felt that, in competent hands, neuropsychiatric manifestations can be evaluated on their own merits. This requires time consuming, repeated interviews. Special examinations, therefore, are best directed when the neuropsychiatric investigation justifies them. When doubt exists, however, the patient is justifiably subjected to investigations.

(*f*) From the standpoint of neuropsychiatry, every disease must be considered as having both a somatic and a psychic component. These two components are indivisible and should be evaluated in their relation to etiology and to the total situation. With this broad psychologic point of view, errors in diagnosis may frequently be avoided.

SUMMARY

1. A variety of neuropsychiatric manifestations often mask visceral disease of etiologic significance.

2. Visceral disease may give rise to neurologic manifestations by reason of the fact that the viscera are innervated by the vegetative nervous system. They are not only influenced by the segmental and suprasegmental portions of the central nervous system and of the emotions but in turn are capable, when disturbed, of giving rise to a disturbance in the emotions and by reason of reflected pain to all sorts of peripheral phenomena. Psychic and emotional states influence the vegetative nervous system and visceral functions and vice versa.

3. Illustrative cases are given wherein neuropsychiatric symptoms have masked cardiac, pulmonary, gastro-intestial, pelvic and genito-urinary diseases.

4. The causes of errors in diagnoses are traceable to faulty and incomplete examinations, to the failure of judgment and proper evaluation of neuropsychiatric manifestations, and to the fact that in predisposed individuals the earliest manifestations of visceral disease may be purely psychiatric in type.

5. From the neuropsychiatric standpoint, disease cannot be regarded as purely psychic or purely somatic. Every disease has a somatic as well as a psychic component and should be viewed from that standpoint for both diagnostic and therapeutic purposes. Moreover, every case should be studied in the light of a total situation.

ABSTRACT OF DISCUSSION

Dr. Julian M. Wolfsohn, San Francisco: Sometimes a neurosis is due to a physical cause and sometimes it has its starting from a mental cause. About a month ago I read a paper before the State Medical Society of California on "Traumatic Disease as a Cause of Mental Disorder," and I brought forward cases very similar to the cases cited by Drs. Weisenburg, Pleasants and Yaskin. The conclusions in that paper were just about the same. As an illustration, one of the individuals who had manifestations of psychosis for about a year, in which he went through a severe neurotic phase, was agitated and uncontrollable; but was finally in a position in which a physical examination could be made, a year and a half after the onset. At that time, tenderness was found in the right iliac fossa. At operation an abscess was found, containing about 2 ounces of thick, green pus, which had evidently been there thirty-two or thirty-three years. The patient was operated on and in two weeks went home, and has been free from any complaints whatever for ten years.

Dr. David C. Wilson, University, Va.: It is highly important to stress that the carcinoma or the ulcer, or whatever the patient has, is not the psychoneurosis; that is, because a person has a gallbladder, it doesn't mean that he cannot have a psychoneurosis. A psychoneurosis is a reduction of that person's personality, a part reaction, as it were; and just because the diagnosis was made in these cases of some organic lesion this does not mean that the patients did not have a psychoneurosis also. The authors made another point which I should like to have them discuss further. They seemed to imply that certain visceral diseases, organic diseases, had some certain rather definite personality reaction; that is, tuberculosis had some kind of definite nervous reaction; carcinoma, another. I don't think they meant that, but I should like them to bring out that point. Certainly in handling people in tuberculosis sanatoriums one sees a great many different psychoneurotic reactions, depending, as one would expect, on the different personalities of the patients.

Dr. Henry Pleasants, Jr., West Chester, Pa.: One of the cases to which, because of lack of time, attention was not called was that of an individual who showed marked neuropsychiatric disturbance, which was extremely difficult to fathom; in fact, the patient at one time presented the picture of an early pernicious anemia before blood changes are demonstrable. This individual was carefully studied and, during this period, a depressive type of psychosis developed. We could not find anything as a cause of the factor until finally we discovered a streptococcus infection of the colon, which under appropriate vaccine, cleared up, its disappearance being accompanied by the appearance of hydrochloric acid in the gastric contents which had been absent before. This was an absolute instance of a masking of the somatic symptoms by neuropsychiatric manifestations.

Dr. Joseph C. Yaskin, Philadelphia: I am afraid that Dr. Wilson misunderstood us. We did not mean to convey the idea that diseases in special organs produce special neuropsychiatric symptoms. These symptoms depend on a number of factors, such as the mental make-up of the individual, the duration and intensity of the disease, and the site of the process. Thus, in tuberculosis of the upper lobes there is a tendency to euphoria whereas with the invasion of the basal lobes or in diseases of the abdomen there is a tendency to depressive types of reaction.

ROENTGEN TREATMENT OF AGRANULOCYTOSIS *

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Although it has been nine years since Werner Schultz first described the new symptom complex which he termed agranulocytosis, and although several hundred cases have been reported in more or less detail, there is as yet no generally accepted definition by means of which the concept of the disease can be accurately circumscribed. Schultz's own definition of the disease is sharp enough: an acute febrile disease with angina, prostration and jaundice, a normal red blood picture, extreme leukopenia with nearly or quite complete absence of granulocytes, a normal number of blood platelets with absence of any tendency to hemorrhage, and an invariably fatal ending. Almost at once, however, cases were reported that lacked one or more of these cardinal symptoms. Jaundice was found more frequently absent than present; a considerable degree of secondary anemia is not rare in otherwise quite typical cases; instead of angina one may find ulcerative processes elsewhere, or even absent; an occasional case runs a chronic rather than an acute course and, finally, cases of recovery, often with repeated recurrence, occur. Accordingly it seems necessary to define agranulocytosis as characterized by fever, usually but not always by ulcerative processes, leukopenia with great diminution of the granulocytes, and nearly normal blood platelets. At autopsy a very characteristic change is found in the bone marrow, consisting in a great paucity of the myelogenous white cells, which are also absent or nearly so in any inflammatory foci that may occur.

But even this description is not quite precise. While a typical case is unmistakable, the disease shades off into a variety of other conditions that can definitely not be included in the concept of pure agranulocytosis. The most important of these is the myelopathy that sometimes occurs in the course of antisyphilitic treatment, most frequently after the use of one of the arsphenamines, but occasionally also after compounds of bismuth or mercury. Ordinarily such cases present a fairly typical clinical picture of their own. The metallic poison depresses all the functions of the bone marrow, so that one encounters, in addition to the symptom complex of agranulocytosis, an anemia, often extreme, and a sharp reduction in the blood platelets with a resulting tendency to hemorrhage. Large numbers of such cases have been reported,[1] and the condition seems to have been known for some years before Schultz's agranulocytosis was recognized as a clinical entity.

In typical cases the blood alteration in the panmyelopathy following antisyphilitic treatment is much more extensive than in agranulocytosis, so that the two can properly be distinguished. But individual cases of each approach one another so that it is possible, from the literature, to construct a series of cases shading almost imperceptibly from the typical agranulocytosis of Schultz to the equally typical panmyelopathy after arsphenamine. It would thus appear that the delimitation of the clinical picture of agranulocytosis is a somewhat artificial one. Nevertheless, most of the cases of agranulocytosis so definitely belong together that convenience justifies setting up this group of cases as a clinical entity.

Oddly enough, the myelopathy following antisyphilitic treatment seems to offer a much more favorable prognosis than true agranulocytosis, and a considerable proportion of the patients recover merely as the result of discontinuing the treatment. The explanation may lie in the fact that with the cessation of antisyphilitic treatment the causative factor of the myelopathy is withdrawn, whereas in true agranulocytosis the unknown agent continues to operate.

A similar condition is sometimes seen in diphtheria. A number of cases have been reported with the typical blood picture of agranulocytosis, differing only in the appearance after the first few days of a moderate percentage of eosinophils. Most of the cases hitherto observed occurred in the course of a single year in Alexandria, so that they are apparently more common in some epidemics than in others. Here, too, the mortality has been essentially better than in idiopathic agranulocytosis. Thus, of the eight cases reported by Farmakidis[2] and by Janz,[3] six recovered after the injection of large amounts of diphtheria antitoxin, making a mortality of only 25 per cent. The explanation of this low mortality is probably the same as that of the myelopathy following antisyphilitic treatment.

Cases of agranulocytosis have been repeatedly observed apparently to pass over into acute lymphatic leukemia. Whether this is really what occurs or whether the resemblance between agranulocytosis, properly so called, and the aleukemic stage of lymphatic leukemia is merely so close that they are readily confused . cannot be determined until something more definite is known about the etiology of agranulocytosis.

The etiology is still fundamentally a mystery. Agranulocytosis has been observed repeatedly in the course of phlegmonous tonsillitis and of septicemia, during influenza,[4] in the course of Hodgkin's disease[5] and malaria,[6] in kidney tumor in an infant,[7] and even after the prophylactic injection of typhoid vaccine.[8] But these are obviously only secondary causes and presuppose a weakness of the bone marrow due to some other factor. The weakness can hardly be congenital, in spite of the fact that a familial occurrence of agranulocytosis has been observed,[9] since it would then occur more frequently in early life and not be, as it is, essentially a disease of late maturity. Everything indicates that the necrotic processes in the throat, mouth and elsewhere are the results, not the cause, of agranulocytosis. The fundamental etiologic factor may not be found until we have succeeded in producing agranu-

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* From the medical service of the Jewish Hospital.

[1] Aubertin, C., and Lévy, R.: Ann. de méd. **27**: 151-164 (Feb.) 1930. Farley, D. L.: Am. J. M. Sc. **179**: 214-227 (Feb.) 1930. Bock, H. E., and Wiede, K.: Folia haemat. **42**: 7-74 (Aug.) 1930.

[2] Farmakidis, C.: Presse méd. **37**: 1121-1123 (Aug. 28) 1929.

[3] Janz, G.: Med. Klin. **25**: 828-829 (May 24) 1929.

[4] Benatt, A., and Pfeuffer, F.: München. med. Wchnschr. **76**: 1283 (Aug. 2) 1929.

[5] Jaffé, R. H.: München. med. Wchnschr. **73**: 2012-2014 (Nov. 26) 1926.

[6] Meyer, A. (Basel): Deutsche med. Wchnschr. **57**: 226-227 (Feb. 6) 1931.

[7] de Lange and von Goor: Folia haemat. **27**: 251-256, 1922.

[8] Bromberg, Leon; and Murphy, Paul: Agranulocytic Angina Following Prophylactic Typhoid Vaccination, J. A. M. A. **92**: 1266-1267 (April 13) 1929.

[9] Hart, V. K.: Laryngoscope **37**: 357 (May), 798 (Nov.) 1927.

locytosis, as distinguished from a nearly complete prostration of the bone marrow, experimentally. A possible hint in this direction may be found in the relative frequency with which an allergic tendency has been observed in the victims of the disease. At present, however, our information on this subject is too scanty to justify conclusions.

In no aspect of the disease do opinions differ so widely as in the matter of treatment. Most of the cases in the literature have been treated symptomatically with stimulants and local antiseptics; many have been treated with foreign proteins but without perceptible effect. The production of a sterile turpentine abscess has been followed by a turn for the better,[10] and the latter has repeatedly been the case after injections of small doses of neoarsphenamine. Reznikoff[11] has reported three recoveries out of four cases of agranulocytosis treated with intravenous injections of guanine or adenine; but these results require confirmation by others, and in one case so treated at the Jewish Hospital of St. Louis no beneficial effect of any kind could be observed. Transfusions[12] have been followed by a sharp rise in the granulocyte count followed by recovery, and the same has been true of small stimulating doses of x-rays[13] applied to the long bones. Other observers, however, have failed to obtain any benefit either from transfusions[14] or from x-rays.[15]

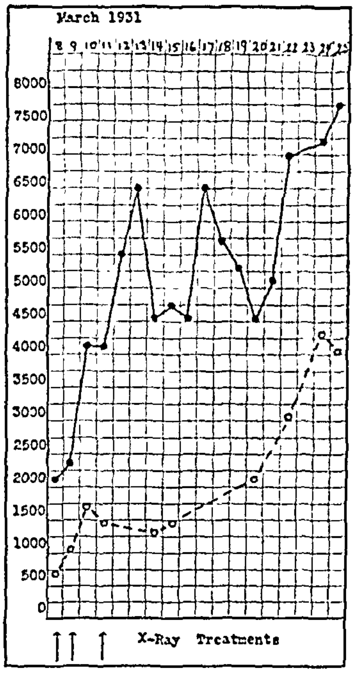

Chart 1.—Leukocytes (solid line) and granulocytes (broken line) in case 1.

The difficulty of estimating the value of therapeutic measures in agranulocytosis is twofold: no one observer, possibly excepting Friedmann with his forty-three cases treated by means of irradiation, has seen enough cases of agranulocytosis to be justified in drawing conclusions from his own experience; and the not infrequent spontaneous recovery from agranulocytosis makes it difficult, in any concrete case, to be certain of the rôle played by treatment in the patient's recovery.

Until recently, the total number of cases reported has not sufficed for the employment of statistical methods. At present, however, this is no longer the case. A review of the literature accessible to us, which unfortunately does not include the Slavic nor all of the Scandinavian, affords 334 well authenticated cases of agranulocytosis, care having been taken to exclude the other forms of bone marrow injury previously mentioned. An analysis of these cases reveals some interesting facts, which may be summarized as follows:[16]

1. Of the 330 cases in which the sex was noted, 104 were in males and 226 in females, a proportion of a little over 2:1; among the males the total mortality was 75 per cent; among the females 77 per cent.

2. The inflammatory lesions were distributed as follows: angina, 241, or 74 per cent; stomatitis, 36, or 11 per cent; no lesion of any kind, 17, or 5 per cent; anal ulcers, 13, or 4 per cent; other lesions, 18, or 5 per cent.

3. The age incidence was as follows: under 20 years, 26, or 9 per cent; from 20 to 40 years, 117, or 38 per cent; from 40 to 60 years, 127, or 40 per cent; over 60 years, 43, or 13 per cent.

4. In analyzing the results of therapeutic measures, it has seemed necessary to exclude from consideration those cases which terminate fatally within forty-eight hours of the time treatment was instituted. These were either fulminant cases in which no treatment could have been of avail, or cases which had been neglected until the end was near. It would obviously be unfair to estimate the value of any therapeutic measure when applied to a moribund patient. With this proviso, the results of therapy as recorded in the literature are shown in the accompanying table.

Results of Therapeutic Measures

	Cases	Deaths	Mortality, per Cent
Cases treated by means of irradiation	64	34	53
Cases treated by means of transfusion	53	34	64
Cases treated with arsphenamine	33	24	73
Cases treated with other therapeutic measures	178	133	75

Since Friedemann has reported such a large portion of all the cases of agranulocytosis treated by means of x-rays, it might be thought that the statistics may have been loaded by his favorable results and that the latter should be looked on somewhat skeptically. This is not the case. Friedemann and Elkeles[13] reported, in all, forty-three cases so treated. Of these patients, eighteen were moribund when first seen. Of the remaining twenty-five, twelve died, making a mortality of 48 per cent. Other observers have reported, in all, thirty-nine cases, in four of which the patients were moribund. Of the thirty-five remaining patients, twenty died, making a mortality of 57 per cent. Our own four cases showed a mortality of 50 per cent, figures which harmonize sufficiently well for so small a group.

In any event, the figures indicate definitely that transfusions and roentgen therapy are useful in the treatment of agranulocytosis and that, of the two, irradiation of the long bones gives the better results. It will probably be wise to use both methods in the treatment of a severe case, and doubtless the results will be the better, the earlier these methods are applied.

During the past year, seven patients with agranulocytosis entered the Jewish Hospital of St. Louis. Of these, two were moribund when admitted and died the same day; a third received only symptomatic treatment. The other four illustrate very well some of the features of roentgen therapy. We use 200 kilovolts corrected by sphere gap; 30 milliamperes, checked on two meters; a target skin distance of 50 cm.; a port of 30 cm.; a filter consisting of 0.5 mm. of copper plus 1 mm. of aluminum. With this set-up, an exposure of forty-five seconds corresponds to about one-twentieth erythema dose, the dose advised by Friedemann. This exposure was given at each sitting in cases 1, 3 and 4; in case 2 the time of each exposure was two and a half minutes.

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[10] Bock and Wiede (footnote 1).

[11] Reznikoff, P.: J. Clin. Investigation 9: 381-391 (Dec.) 1930.

[12] Reye, E.: Med. Klin. 24: 1437-1438 (Sept. 14) 1928. Finnigan, F. R.: J. Missouri M. A. 24: 258 (June) 1927. Rosenthal, N.: Laryngoscope 40: 592-597 (Aug.) 1930.

[13] Friedemann, U., and Elkeles, A.: Deutsche med. Wchnschr. 56: 947-950 (June 6) 1930. [illegible] Med. Klin. 24: 1236-1237 (Aug. 10) 1928. Starlinger [illegible] 7: 866, 1928.

[14] Leuchtenberger, R.: [illegible] (Oct.) 1929. Pfab, B.: Wien. klin. Wchnschr. [illegible]) 1925.

[15] Rosenthal, N. (footnote 12). Schultz, W.: Klin. Wchnschr. 8: 1530-1532 (Aug. 13) 1929.

[16] It will be noted that the totals in the different classifications do not tally. The reason for this is twofold: First, a number of the case reports fail to state the sex of the patient, others the age; some do not even note the site of the inflammatory lesion. Second, in analyzing the therapeutic results, cases of complete and long continued recovery, with subsequent relapse, were counted once for each attack. Only the extraordinary case of Rutledge, Hansen-Pruess and Thayer, with its innumerable recurrences recovering without therapy, was counted but once.

REPORT OF CASES

Case 1.[17]—N. W., a woman, aged 30, was admitted to the Jewish Hospital, March 9, 1931, with a history of fever and general malaise for five days. The temperature was 100.6, pulse 88, respiration 44. Physical examination gave negative results except for a dirty gray exudate on both tonsils. The blood contained 4,400,000 red cells, 75 per cent hemoglobin, 2,000 white cells; the differential count showed stabs, 19 per cent; segmented cells, 4 per cent; lymphocytes, 50 per cent; mononuclears, 24 per cent; degenerated cells, 3 per cent. The subsequent changes in the blood are shown on the chart. The patient received three roentgen treatments over the long bones of 0.05 skin unit dose each. Almost at once the blood and the clinical picture showed a marked improvement, and she was discharged in good condition, March 25. During her entire stay in hospital the patient received fairly large doses of desiccated hog stomach.

Case 2.—Mrs. B. S., aged 51, was observed in consultation with Dr. D. L. Sexton, who had been treating her at home for pityriasis rosea. Aug. 1, 1930, she felt slightly ill and had a temperature of 101, which rose next day to 102, with great prostration and crackles over the bases of both lungs. Pneumonia being feared, she was transferred to the Jewish Hospital. Physical examination gave negative results, except as already described and except for a thrombosed pile; the mouth and the pharynx, in particular, were quite clear. A blood count showed 3,880,000 red cells, 73 per cent hemoglobin and 825 white cells; there were no granulocytes, only lymphocytes being found in the stained spread. The subsequent changes in the blood are recorded on the chart. On August 2 and again on August 3, she received an irradiation of 0.25 skin unit dose over the long bones. An immediate clinical and hematologic improvement resulted; within a few days the blood picture was normal and the patient clinically well. Two weeks later the white blood cell count and the percentage of granulocytes dropped sharply, though the patient continued to feel well. August 25, however, the white blood cell count having fallen to 2,400 and the granulocytes to 11 per cent, she again received an irradiation of 0.25 skin unit dose over the long bones. Again there was a prompt rise in the white and granulocyte count but not to normal. August 30, she began to receive daily large doses of liver extract. This was followed by a rapid return of the blood picture to normal, and the patient was discharged, clinically well, September 5. She has remained well ever since.

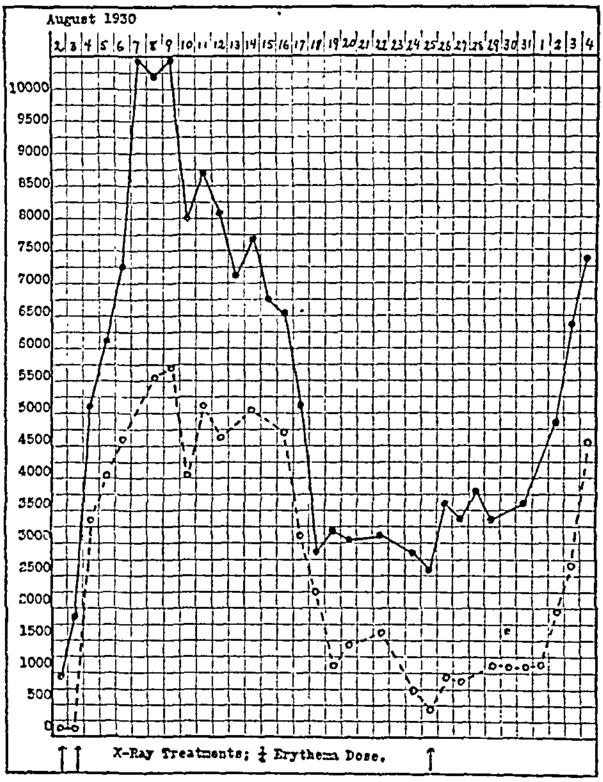

Chart 2.—Leukocytes (solid line) and granulocytes (broken line) in case 2.

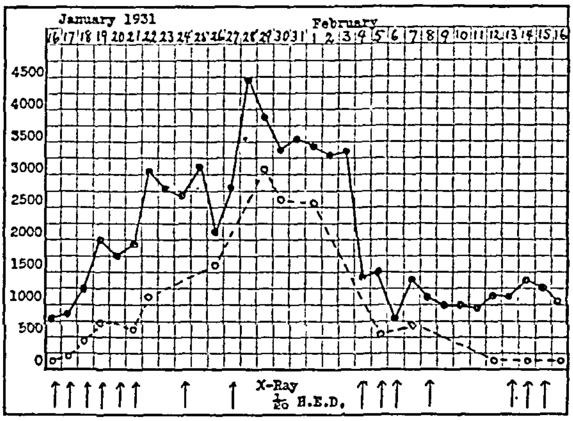

Chart 3.—Leukocytes (solid line) and granulocytes (broken line) in case 3.

Case 3.—Miss E. C., aged 80, had received a radium treatment for cervical polyp in the spring of 1930. A small but irritable rectal burn resulted that made her an invalid all summer. In the fall she grew much better and was supposed to be on the way to recovery. January 15, however, weakness and vague malaise set in and the next day, on attempting to get out of bed, she collapsed on the floor. She was brought to the Jewish Hospital, where she was found to have a temperature of 103, pulse 110, respiration 26. Physical examination gave negative results except for the usual senile changes and a small rectal ulcer. The diagnosis was not made until the next day, when a blood count was done which showed 4,420,000 red cells, 80 per cent hemoglobin and 950 white cells, with 5 per cent granulocytes. A slight angina then made its appearance, rapidly grew worse and culminated in phlegmonous tonsillitis; there was also some gingivitis. For the first six days of her stay in the hospital, she received a daily irradiation of 0.05 skin unit dose over the long bones and during the second week two similar doses. The white blood cell count and the granulocyte count slowly rose to a fairly satisfactory figure (chart 3); the angina cleared up completely; the fever ceased, and the patient gained strength and felt quite well. February 3, the white blood cell count and the granulocyte count again dropped sharply and again presented the picture of an extreme agranulocytosis. This time, roentgen therapy was of no avail, nor was there any response to the injection of large doses of leukocyte extract and the feeding of liver extract. In spite of the marked agranulocytosis, the patient remained euphoric and free from symptoms for ten days. February 13, the temperature rose; the patient became drowsy and finally comatose, and died, February 17. Autopsy showed only the typical bone marrow changes and the rectal ulcer previously referred to.

Case 4.—Mrs. M. G., aged 41, was observed in consultation with Dr. Elmer Richman. Her previous history was not important. For a week she had had a coryza with an unusual degree of prostration. The white blood cell count at that time was 7,000, with a normal differential picture. On the appearance of a suppuration in the middle ear, she was transferred to the Jewish Hospital, with a temperature of 102, pulse 100 and respiration 20. Physical examination gave negative results except for a purulent discharge from the left ear and an injected pharynx. A blood count showed 4,400,000 red cells, 80 per cent hemoglobin, and 3,300 white cells, all of which were large and small lymphocytes. A blood culture was negative. In spite of adequate local treatment, the temperature remained high; the pharynx rapidly became phlegmonous, with necrotic areas; the prostration grew extreme, and the white blood cell count fell to 650 without any granulocytes. The patient appeared moribund. Beginning March 4, she received six daily irradiations over the long bones, 0.1 the first day and 0.05 skin unit dose thereafter. The white blood cell count and the granulocyte count rose sharply to far above the normal (chart 4); the fever ceased; the angina cleared up, and the patient became clinically well. Her condition remained satisfactory until March 20. Two days later, concomitantly with a drop in the white blood cell count and the granulocyte count, the pharynx again became injected. Four daily irradiations of 0.05 skin unit dose over the long bones failed to halt the drop in the white blood cell count and the granulocyte count; the fever reappeared, and the angina became phlegmonous. Liver feeding, the injection of leukocyte extract and of "nucleotids," according to the method of Reznikoff, were equally without effect. The patient became increasingly prostrated, finally grew comatose, and died, April 1. Autopsy was essentially negative except for the usual bone marrow changes characteristic of agranulocytosis.

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[17] For permission to report this case I am indebted to Dr. Jerome E. Cook.

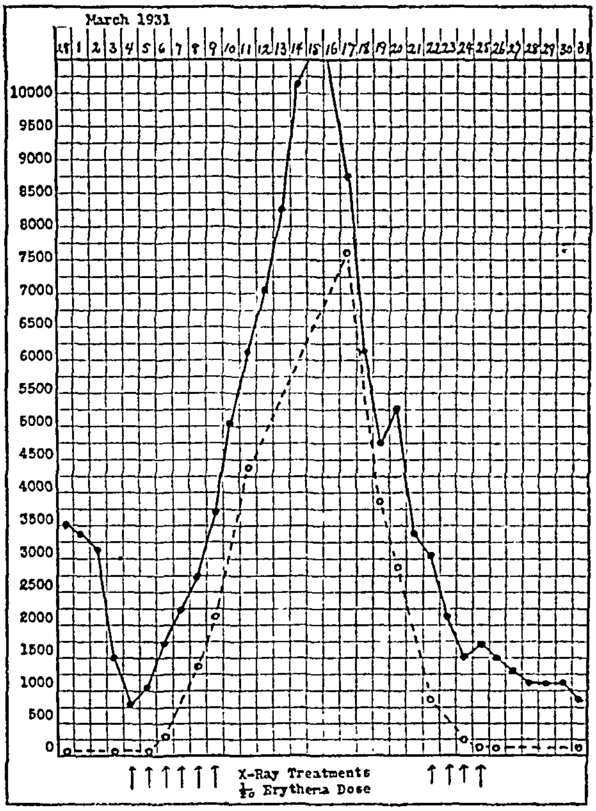

Chart 4.—Leukocytes (solid line) and granulocytes (broken line) in case 4.

COMMENT

An inspection of the blood charts in these four cases can hardly fail to justify the conclusion that stimulating doses of x-rays are an effective therapeutic measure in agranulocytosis, provided the injury to the bone marrow is not too extreme. In two of the cases recovery was permanent, at least for the time being. In the other two the first response was also satisfactory. Apparently, however, the unknown toxic agent, obviously independent of the angina, continued to act, and finally depressed the bone marrow function to such an extent that neither roentgen therapy nor any of the other measures used were of avail. It is of interest to note that in the second case roentgen therapy was only moderately effective during the patient's relapse but that the blood returned to normal concomitantly with the feeding of liver extract. Unfortunately, this is not the usual experience in these cases.

The use of roentgen therapy in agranulocytosis dates from Friedemann's first communication in 1927 and has been kept alive by repeated papers on this subject ever since. The effect of the usual massive dose on the bone marrow is well known. There is a simultaneous depression of the production of erythrocytes, leukocytes and thrombocytes, producing the picture of an aplastic anemia, often with a tendency to hemorrhage. Apparently, minimal doses have the opposite effect, especially as regards the granulocytes. Burgheim[18] exposed the long bones of a number of healthy individuals to single exposures of one-twentieth erythema dose; in each case he observed a slight but definite rise in the granulocyte count, often within two hours. Thoma gave roentgen treatments to a number of typhoid patients with marked leukopenia and observed a rise in the leukocyte count of from 1,000 to 3,000. In diseased bone marrow the effect of roentgen therapy appears to be still more marked. In three of our cases the rapidity with which the granulocytes regenerated after the first few irradiations speaks strongly for the value of the treatment.

What is the optimum dose of x-rays in the treatment of agranulocytosis? Friedemann uses one-twentieth erythema dose daily, and nearly all the clinicians who have used the method have followed in his footsteps. His fundamental notion is to have a quantity of rays which will assuredly not exert a depressing action on the bone marrow. But there is reason to believe that the dose was chosen a little too low. In our third and fourth cases a number of exposures with this dose were necessary to bring about a satisfactory effect on the blood picture, whereas in the second case a prompt and satisfactory effect was produced by one or two exposures with a dose five times as great. Whether the larger dose is safe as well as efficient remains to be determined by further experience.

CONCLUSIONS

1. Cases of agranulocytosis are being observed with increasing frequency, so that it may be said to have ceased to be a rare disease.
2. The symptom complex of agranulocytosis has been circumscribed somewhat arbitrarily. While it is convenient to distinguish it from the bone marrow depression observed in benzene poisoning, in the course of antisyphilitic treatment and in the aleukemic stage of lymphatic leukemia, borderline cases are not infrequent, in which proper classification is difficult.
3. Cases 2 and 3 show clearly that the fall in the granulocytic blood count may precede the appearance of a sore throat. A study of the literature reveals numerous similar observations and justifies the conclusion that the agranulocytic blood picture is the cause and not the result of the angina.
4. Agranulocytosis occurs about twice as frequently in women as in men; the mortality in the two sexes is about the same.

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[18] Burgheim, F.: Strahlentherapie 38: 152-156, 1930.

5. Of the methods of treatment at present in use, the most promising appears to be the irradiation of the long bones by means of minimal doses of x-rays. Transfusions are also apparently useful.

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ABERRANT THYROID[*]

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In its broadest sense the term "aberrant thyroid" includes all portions of thyroid tissue in other than the normal position of the thyroid gland and unconnected with it. This includes (1) lingual thyroid and thyroid tissue found along the thyroglossal tract, (2) lateral aberrant thyroids or those in a cervical position lateral to the jugular vein, (3) the extremely rare intrathoracic goiter with no connection with the main thyroid body and, finally, (4) those portions of thyroid tissue found in teratoid tumors and in sites far removed from the thyroid. The fact that certain portions of the thyroid extend into intrathoracic, substernal, subclavicular, retrotracheal and retrolaryngeal positions does not make them aberrant in any sense. True intrathoracic goiters with no connection with the inferior pole of the thyroid are rarely found and it is quite likely that these have previously been a part of the gland but have become separated during their growth and descent during adult life through the upper thoracic strait. Davis[1] found normal appearing thyroid tissues in the aortic fat bodies of twenty-two out of fifty dogs examined but did not find them in any other animal and they are not present in man, so are of only academic interest. In this paper only lateral aberrant thyroids will be considered since the two cases of lingual aberrant thyroid that we have observed in the clinic have already been reported[2] and because the thyroid tissue in tumors is not of clinical interest.

Thirteen patients with lateral aberrant thyroids have been operated on in the Lahey Clinic in the past six years. From a review of the literature one is impressed with the relatively rare occurrence of this condition. Billings and Paul[3] were able to find only thirty-four proved cases in the literature from 1857 to 1923, and they added one case. All their reviewed reports were individual case reports with the exception of two, each describing three instances. In 1928 Leech, Smith and Clute[4] reported four cases from this clinic. Twelve additional cases have been reported since this publication, including a possible bilateral one by Lewisohn.[5] Nine additional cases have been seen since the first report from the clinic and all thirteen cases are considered together since a follow-up examination has been obtained in all of them.

A consideration of the embryology is of practical importance to understand this condition. The origin of the thyroid gland from a median ventral position in the pharynx is well established. This readily explains the origin and presence of thyroglossal cysts, sinuses and fistulas as well as lingual thyroid and the aberrant portions of the thyroid tissue in the midline. On the other hand, it does not explain the lateral cervical portions of thyroid tissue. From a review of comparative and human embryologic studies, it seems clear that groups of cells arise from a lateral position in the pharynx which would correspond to a fifth pharyngeal pouch or ultimobranchial body.[6] These pass downward and come into relation to the main thyroid body. Norris,[7] in a study of seventy-two human embryos, has shown that these cell groups fuse with the lateral lobes of the thyroid in the 15 mm. human embryos but atrophy and form no part of the normal thyroid gland. An arrest in this lateral descent and atrophy will account for lateral aberrant thyroids and seems a logical explanation of their origin. An arrest in development is further indicated since all our thirteen cases have shown a tumor structure in the aberrant thyroid, and this agrees with our understanding of fetal rests.

A consideration of our thirteen cases offers a clear clinical picture of this disease and is perhaps more accurate than a review of individual case reports. The age of these patients seems of little value in diagnosis. The youngest was 11 years of age, and this case showed adenocarcinoma in the aberrant thyroid. Five patients were under 30 and eight were above this age, two of them being 67 and 70, respectively. There were ten females and three males, a ratio which corresponds with the incidence of patients having thyroid disease in our clinic. The duration of the tumor seems of more importance. Only four had been noticed under one year. Of the nine present longer than a year, five had been noted over five years and one for twenty years. It would seem that a tumor of long standing that had shown little variation in size would be more likely to be of this type than one with a history of rapid growth or increase and decrease in size. There are no characteristic symptoms associated with this condition. Ten of our patients sought advice because of the discovery of a mass in their neck. One had symptoms of hyperthyroidism, while another had symptoms related to pressure of the tumor on the trachea. Hyperthyroidism, which was noted in one case, was due not to the aberrant thyroid but to a hyperplastic main thyroid gland. There was no corresponding hyperplasia in the aberrant thyroid tissue. We have no evidence in any of our cases to indicate an increased physiologic activity of the lateral aberrant thyroids. There has been no elevation of the basal metabolic rate; there has been nothing in their histories to suggest changes in size of the tumors similar to those commonly observed in the thyroid gland. This absence of symptoms related to these tumors is of definite diagnostic value and is helpful in differentiating them from lymphosarcoma and tuberculous cervical glands.

With regard to position, six patients presented tumors on the right side and six on the left side with one being found in the midline. A single discrete mass was found in eight patients. These varied in size from an English walnut to a small orange. In four patients there were extensive tumor nodules scattered from the mastoid process and angle of the jaw to the clavicle. In one, only a few nodules were present. None of our cases were proved to have bilateral involvement. The diagnosis of lateral aberrant thyroid is rarely made before operation. A preoperative diagnosis was made in two of our patients without biopsy, but these were in recent cases after several had been observed. In any consideration of cervical tumors this condition should be thought of, although no positive diagnosis can be made without a biopsy. Three of our patients had had a biopsy before coming to us. In our series a diagnosis of tuberculous glands was made three times; Hodgkin's disease, branchial cyst, dermoid cyst, adenoma of the thyroid and carcinoma or sentinel gland were made each once. Other conditions which must be considered are tumors of nerve origin, carotid body tumors, lipomas, fibromas and carcinomas of nasal or pharyngeal origin.

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[*] From the Lahey Clinic.

[*] Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Davis, D. J.: The Periaortic Fat Bodies, Arch. Path. & Lab. Med. **4:** 937 (Dec.) 1927.

[2] Lahey, F. H.: Lingual Goiter, Surg. Gynec. Obst. **36:** 395 (March) 1923. Cattell, R. B., and Hoover, W. B.: Lingual Thyroid Gland, S. Clin. North America **9:** 1355 (Dec.) 1929.

[3] Billings, A. E., and Paul, J. R.: Tumors of Lateral Aberrant Thyroids, Bull. 9, Ayer Clin. Lab., 1925, p. 27.

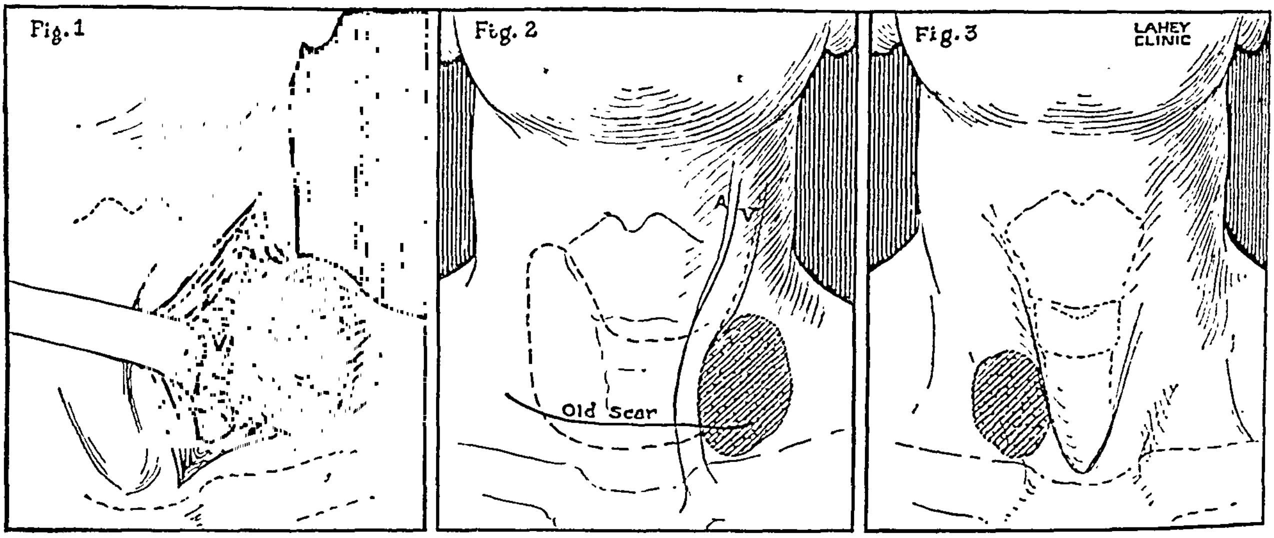
[4] Leech, J. V.; Smith, L. W., and Clute, H. M.: Aberrant Thyroid Glands, Am. J. Path. **4:** 481 (Sept.) 1928.

[5] Lewisohn, Richard: Symmetrical Lateral Aberrant Thyroid, Ann. Surg. **84:** 675 (Nov.) 1926.

[6] Wenglowski, R.: Fistulas and Cysts of the Neck, Arch. f. klin. Chir. **98:** 151, 1912.

[7] Norris, E. H.: The Early Morphogenesis of the Human Thyroid Gland, Am. J. Anat. **24:** 443 (Nov.) 1918.

The operative treatment in our cases was determined by the extent of the tumor. In five, local excisions were done. Four had local excisions together with a biopsy of the main thyroid or hemithyroidectomy. Four had radical block dissections of the neck with removal of the internal jugular vein. The main thyroid gland was examined by palpation and direct inspection, and any portion appearing abnormal was removed.



Figs. 1, 2 and 3 (cases 1, 2 and 3).—Wide variation in size, number and position of lateral aberrant thyroid nodules.

Even with an incorrect preoperative diagnosis the condition can usually be recognized at operation. In the discrete type that we have seen the surface of the tumor appears coarsely lobulated and divided by vessels much as in the case of the normal thyroid lobe. Smaller ones are usually solid tumors and are quite granular on their surface. Colloid is not usually abundant. In the larger discrete tumors, central areas of necrosis are present. When multiple tumor nodules are found, the same characteristics may be in evidence; but all our cases of this type have shown a distinctive coloring. On exposure of the nodules, bluish black areas are seen alternated with the gray or brownish red contrasting thyroid tissue. This could readily be confused with the metastatic glands of melanotic sarcoma. The dark coloring, however, is due to small areas of hemorrhage. Hyperplastic lymph glands are occasionally seen in association with them. The nodules were found adherent to the internal jugular vein four times, and in one instance a thin portion was left where it was attached to the common carotid artery.

The microscopic examination of these glands has shown a characteristic picture. All have shown the same papillary type of structure which is recognized as papillary cystadenoma. Six showed this type of structure without invasive characteristics and without marked epithelial proliferation. Five showed malignant characteristics consisting of invasion of muscles and involvement of the regional lymph nodes. Two showed definite adenocarcinoma. One patient with multiple aberrant nodules showed hyperplasia and moderate colloid storage in the nodules. The metabolism test was normal and there was no change in the main body of the thyroid gland. Only four showed any appreciable amount of colloid, so that if this finding was considered as the most important in their recognition as of thyroid origin it would be difficult to recognize some of them. In six, a portion of the lobe on the side of the aberrant thyroid was removed. One showed hyperplasia, one showed an adenomatous structure, three showed areas of papillary cystadenoma which were thought to be malignant and of the same character and grade of malignancy as that evidenced in the lateral thyroid tumor nodules. One showed papillary adenocarcinoma in the nodule in the lobe on the same side.

It is, of course, impossible to state in the four patients that showed the same type of structure in the thyroid gland as in the lateral aberrant thyroid which was the primary site of the tumor. Clute and Warren,[8] in reviewing cases of carcinoma of the thyroid seen in this clinic, found 24 per cent of them showing papillary cystadenoma or papillary adenocarcinoma. It is quite possible that a considerable number of these tumors arise from the lateral anlage of the thyroid which normally atrophies, thus having an origin like that of the lateral aberrant thyroid tumors. The degree of malignancy and the prognosis in these cases of papillary cystadenoma of the thyroid and lateral aberrant thyroid are very similar.

The first four of our patients had no subsequent treatment, while the remaining nine all had considerable postoperative roentgen therapy. In spite of the low grade of malignancy we consider it advisable to give all of them this treatment after removal of the tumors.

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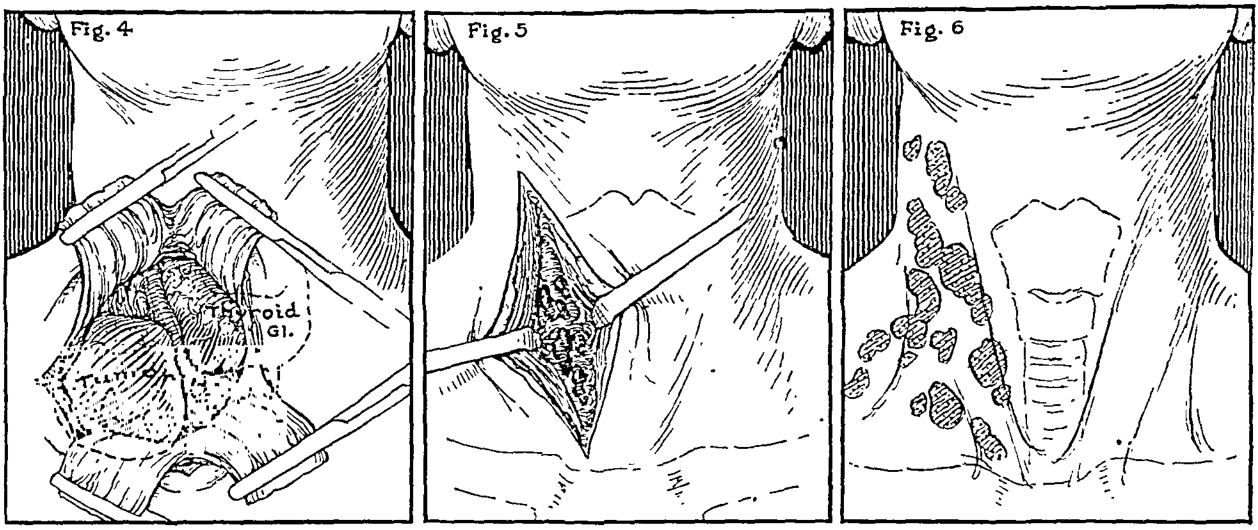
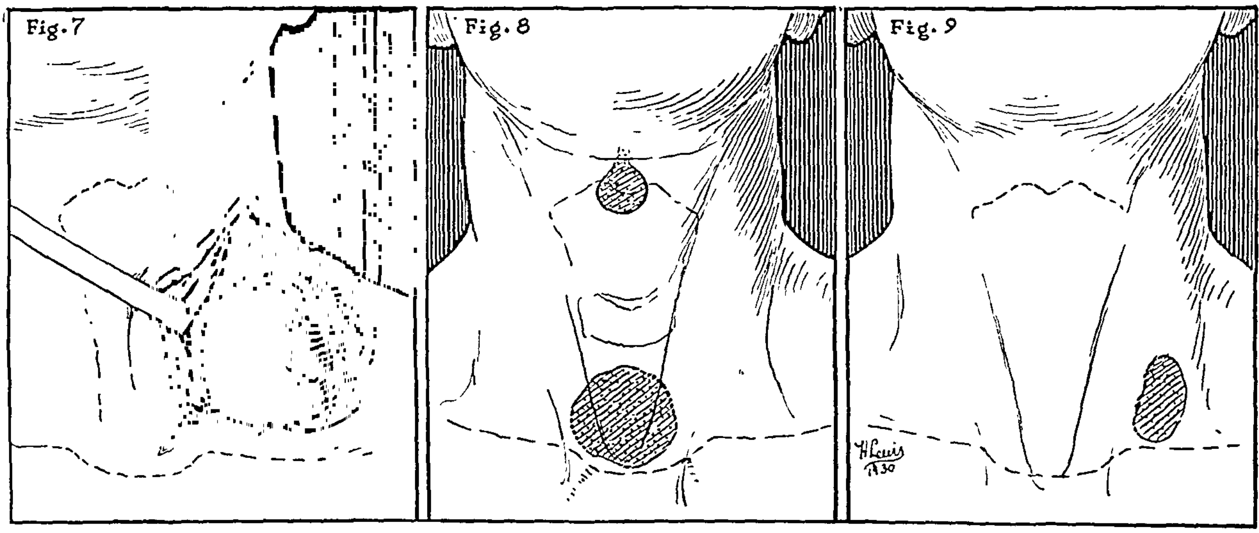
[8] Clute, H. M., and Warren, Shields: Cancer of the Thyroid, Am. J. Cancer **15**: 2563 (Oct.) 1931.

They should receive a course of from four to six treatments in a series six months apart during the first year and if there is no evidence of recurrence after that we feel that it is safe to discontinue treatment but we examine them frequently. It must be admitted that there was no difference in results in the patients treated by x-rays and those who did not receive them, but such therapy is an additional safeguard against recurrence.



Figs. 4, 5 and 6 (cases 4, 5 and 6).—Wide variation in size, number and position of lateral aberrant thyroid nodules.

A follow-up study of these patients has been very instructive and has changed our opinion with regard to the grade of malignancy in these cases. One patient with a simple excision of the tumor is well, without any evidence of recurrence five years after operation. One patient who had local excision together with excision of a similar nodule from the thyroid is well without evidence of recurrence three years after operation and has received no roentgen therapy. One patient with a radical block dissection of the neck received postoperative roentgen therapy and is well two and a half years later. There is one small nodule in the superior pole of the thyroid gland on this side. A biopsy of the gland at the time of operation showed an adenomatous type of structure without involvement with papillary cystadenoma. This patient has a spinal accessory eleventh nerve paralysis. Another patient with a radical dissection of the neck for malignant papillary cystadenoma shows two small nodules two years after operation in spite of repeated roentgen treatment. One patient has a small gland above the incision. This was present immediately after operation and was one of a chain of glands that showed only hyperplasia at the time of operation. All the remaining seven patients are well without evidence of recurrence more than one year postoperatively. One patient was operated on only four months ago, the case being too recent to report. There has been no operative mortality and no patient at present shows any evidence of a tumor possessing malignant characteristics. One patient died sixteen months after operation from a cerebral thrombosis.



Figs. 7, 8 and 9 (cases 10, 11 and 12).—Wide variation in size, number and position of lateral aberrant thyroid nodules.

SUMMARY

Thirteen cases of lateral aberrant thyroid have been reviewed. All showed a similar structure of papillary cystadenoma. In considering this group of cervical tumors, wish to point out the low grade of malignancy as compared with other epithelial tumors involving the cervical glands. These tumors frequently go unrecognized and may be reported as metastatic carcinoma of unknown origin in the cervical glands. It is believed that neck tumors, outside of the thyroid gland showing papillary cystadenoma, are of lateral aberrant thyroid origin and are the result of arrested development. Satisfactory results were obtained by radical removal followed by postoperative irradiation. It is important to recognize them, since a good prognosis can be given.

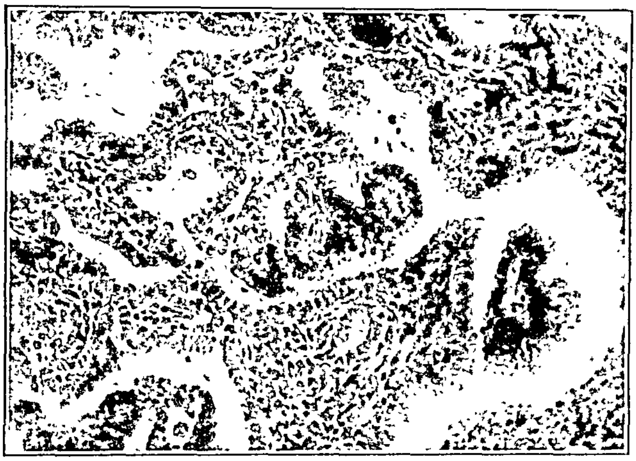


Fig. 10. Typical structure of papillary cystadenoma of a low degree of malignancy. There are few mitotic figures.

CASE ABSTRACTS

Case 1.—Mrs. B. H., aged 70, was seen at the clinic in June, 1925, when she complained of a mass the size of a hen's egg in the left side of her neck. It had been present for three years and there had been a slow growth with extension upward and backward. There had been no subjective symptoms. On examination a hard mass was found above the clavicle on the left side (fig. 1). It was somewhat adherent. The thyroid was normal and there was no adenopathy. The diagnoses of tuberculous cervical gland, Hodgkin's disease and lymphosarcoma were considered.

At operation a mass 8 cm. by 5 cm. was found in the left supraclavicular space beneath the sternomastoid muscle. The muscle was retracted medially and the mass was found to be adherent to the surrounding structures including the internal jugular vein, and appeared malignant. The tumor was removed and she made an uncomplicated recovery and she has had no subsequent treatment. The histologic diagnosis was papillary cystadenoma. An examination five years after operation showed no evidence of either local or general recurrence.

Case 2.—Miss M. R., aged 37, came to the clinic in April, 1929. A subtotal thyroidectomy for exophthalmic goiter had been done sixteen years previously. She apparently had made a good recovery but at one time was reported to have myxedema. A year before our examination she developed dyspnea, precordial pain and auricular fibrillation. Four years previously a tumor had been removed from above her left tonsil. Examination showed an old thyroid scar with a mass 2 inches (5 cm.) in diameter beneath the left angle of the incision (fig. 2). It did not move with deglutition. The right lobe of the thyroid appeared to be enlarged. A preoperative diagnosis of carcinoma of the cervical glands, probably of pharyngeal origin, was made. At operation the tumor was identified outside of the internal jugular vein and common carotid artery, which it displaced medially. The artery was adherent to it. The mass was excised, leaving a small thin portion adherent to the common carotid artery. On exploration of the thyroid, the left lobe appeared of normal size while the right lobe was about three times normal size and appeared hyperplastic. Since the preoperative metabolism test was +30, a right subtotal hemithyroidectomy was done. The pathologist reported that the tissue from the right lobe showed primary hyperplasia with involution and the tumor as papillary cystadenoma in an aberrant thyroid. She died sixteen months after operation with a cerebral hemorrhage, without evidence of recurrence of the tumor.

Case 3.—Miss E. T., aged 20, came to the clinic in November, 1926, complaining of enlarged glands in the right side of her neck noticed one week previously. She had noticed no symptoms related to them. She had lost 20 pounds (9 Kg.) in two years. Examination showed a firm gland just behind the lower insertion of the right sternomastoid muscle (fig. 3). At operation a tumor an inch and a half in diameter was removed from this position. It was not adherent. It presented certain characteristics of thyroid tissue. The thyroid gland was normal and not involved with the tumor. The pathologist reported it as papillary cystadenoma. She received no subsequent treatment and has had no evidence of recurrence in five and one half years.

Case 4.—F. W., a physician, aged 67, was seen in 1927 because of a tumor in the right side of the neck which had been present for twenty years without change in size. A diagnosis of adenoma of the right lobe of the thyroid was made. At operation outside of the thyroid under the sternomastoid muscle was a large, adherent mass 8 cm. by 5 cm. by 4 cm. (fig. 4) which contained a yellowish, mucoid fluid and was made up of a papillary-like structure. There were many veins scattered over the surface of the tumor. It was removed, following which the right lobe of the thyroid was exposed. A similar body 1 inch (2.5 cm.) in diameter was found in the inferior pole. No connection between the two could be demonstrated. The pathologist reported both as papillary cystadenoma. This patient received no subsequent treatment. Three years after operation there was no evidence of recurrence and no nodules could be palpated in the thyroid gland.

Case 5.—Mrs. B. B., aged 41, was seen in March, 1928. In 1921 a left hemithyroidectomy for exophthalmic goiter had been performed and in 1924 a subtotal thyroidectomy was done because of persisting symptoms. One year previously a small recurrent nodule was removed which was reported as an aberrant thyroid. Eight weeks previous to our examination a lump appeared to the right of the larynx. On examination a nodule 1 cm. in diameter was found in this position. There were clinical evidences of myxedema but the metabolism test was normal. At operation, all the deep cervical chains of lymph glands on the right side were found to be enlarged and firm with the same appearance as the lump previously described (fig. 5). They involved the internal jugular vein, so that in doing a radical dissection the vein was removed. All glands between the clavicle and the angle of the jaw were removed,

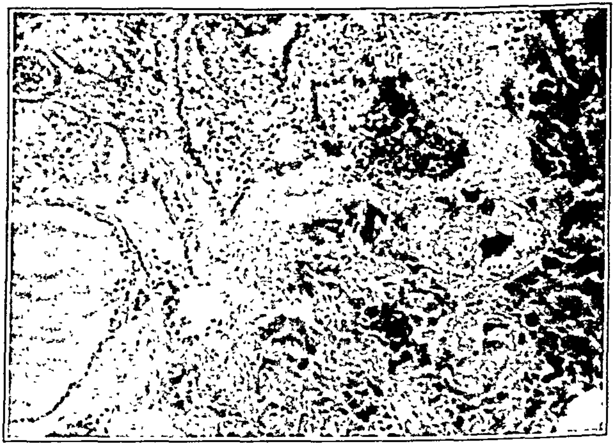


Fig. 11.—Section of aberrant thyroid tissue showing papillary cystadenoma with invasive characteristics. Strands of epithelial cells can be seen invading the stroma. Positive identification as an aberrant thyroid can be made by the presence of colloid in the section.

including some from the occipital triangle. The pathologist reported these glands as showing papillary cystadenoma or multiple aberrant thyroid nodules. He believed that they were definitely malignant. The patient received postoperative roentgen therapy and two years after operation only too small lymph glands are palpable. She has developed mild hypothyroidism.

CASE 6.—Miss F. K., aged 21, came to the clinic in September, 1927, because of enlarged cervical glands. These had been noted six months previously and had gradually increased in size. On examination numerous glands could be palpated in front of, beneath and behind the right sternomastoid muscle (fig. 6). Each was discrete and movable. A diagnosis of Hodgkin's disease was made but biopsy showed papillary cystadenoma or aberrant thyroid. A radical block dissection was then carried out, the internal jugular vein and all palpable glands being removed. It was believed that the glands extended farther beneath the clavicle into the chest. The right lobe of the thyroid was exposed but was not involved. A portion was taken for microscopic section which showed no evidence of a similar structure to that in the glands. She received extensive postoperative roentgen therapy and three years after operation nodules could not be felt in the right side of her neck and her general condition was good. One small nodule could be palpated in the superior pole of the right lobe of the thyroid which was thought to be adenomatous in character. She had a paralysis of the right trapezius muscle.

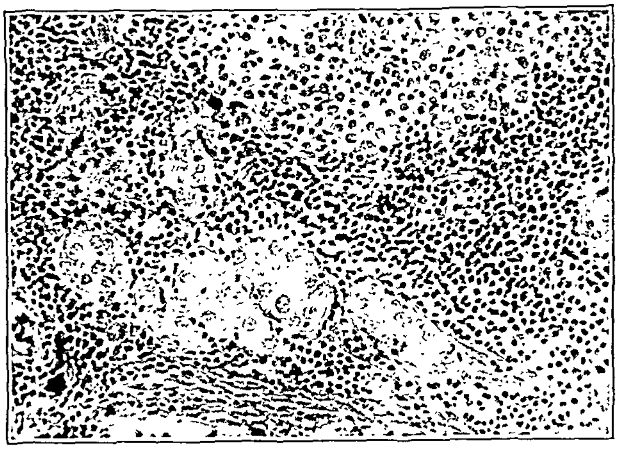


Fig. 12.—Invasion of a lymph gland by papillary adenocarcinoma from an aberrant thyroid. A few mitotic figures can be seen.

CASE 7.—Miss H. B. J., aged 21, seen in April, 1929, stated that a gland had been removed from the left side of her neck eight years previously. Two years before our examination the glands had returned and had slowly increased in size. Two weeks before, a second biopsy was done and was reported as showing hyperplasia of the thyroid tissue. On examination there was a mass of confluent glands varying from 1 to 3 cm. in diameter and extending along the posterior border of the left sternomastoid muscle over its entire extent. A roentgenogram of the chest showed no evidence of metastases. A diagnosis of papillary cystadenoma or aberrant thyroid was made. A radical dissection of the neck was carried out, displacing the sternomastoid laterally; the internal jugular vein and the common carotid artery lay on the surface of some of the glands as well as medial to them. All the glands were excised. They resembled thyroid tissue. The left lobe of the thyroid, while not connected with the gland, contained several firm nodules similar in appearance to the lateral nodule. A left hemithyroidectomy was done. The pathologist reported the thyroid portion as showing papillary cystadenoma. The lymph nodes and lateral masses were also of papillary cystadenoma but were thought to be malignant. She received postoperative roentgen therapy and one year after operation there was no evidence of any swelling in the neck.

CASE 8.—Miss A. V., aged 17, came to the clinic in February, 1930, because of a swollen gland. This had been present for eight years without noticeable change in size. She associated pain and aching in this area with the gland. Examination of the tonsils showed a low grade infection. In the right submaxillary triangle, just behind the angle of the jaw, was a firm, discrete gland which was movable. A diagnosis of chronic tonsillitis and of a tuberculous cervical gland was made. At operation the sternomastoid was found over the mass which was opposite the upper border of the larynx. On exposure it appeared to be thyroid tissue. It lay lateral to the internal jugular vein and common carotid artery but a fibrous band could be demonstrated passing over the vein between the tumor mass and the superior pole. The tumor was removed, together with a portion of the superior pole. Several small lymph nodes in the region of the tumor were removed. The pathologist reported both the portion of thyroid tissue from the superior pole and the tumor mass to be papillary cystadenoma. The lymph nodes around the tumor showed only hyperplasia. One month after operation a small nodule could be felt just above the incision. The patient received postoperative roentgen therapy and one year after operation the small nodule had not changed. There was no evidence of other extensions or of a recurrence.

CASE 9.—Miss R. F., aged 11, came to the clinic in January, 1930, because of lumps in the right side of her neck. These had appeared one and a half years previously. A year before, tonsillectomy had been done without benefit. Nine months previously a biopsy was done and the gland was reported not malignant. Three months before, a second biopsy was done which showed papillary cystadenoma. Previous to our examination she received several roentgen treatments with some decrease in the size of the lumps. All the glands of the right cervical chain were enlarged and varied in size from 1 to 5 cm. in diameter. The thyroid gland could not be palpated separately. A radical dissection was done, removing the internal jugular and all of the glands from the mastoid process to the clavicle below. On the posterior surface of the right lobe of the thyroid was a small cluster of similar tumor masses in the area of the recurrent laryngeal nerve. The entire right lobe and part of the isthmus were removed after isolation and preservation of the recurrent nerve. The pathologist reported this as papillary adenocarcinoma. The patient received postoperative roentgen therapy and one year after operation no glands can be felt and the left lobe of the thyroid appears soft and pliable.

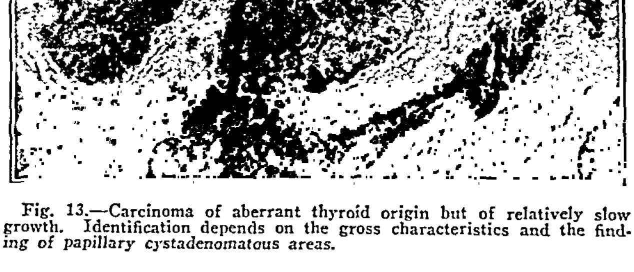


Fig. 13.—Carcinoma of aberrant thyroid origin but of relatively slow growth. Identification depends on the gross characteristics and the finding of papillary cystadenomatous areas.

CASE 10.—L. L. B., a man, aged 52, seen in April, 1930, stated that a lump had appeared above the left clavicle six years previously and had slowly grown in size. It had given no symptoms. At examination there was a large firm tumor 4 inches (10 cm.) in diameter in the left superclavicular region (fig. 7). It appeared regular in outline and did not move when the patient swallowed. The mass was found beneath the sternomastoid muscle and lay lateral to the internal jugular vein. It was cystic in character. No projections were found descending toward the thyroid gland or to the pharynx. The thyroid was normal. The operative diagnosis was branchial cyst. The pathologist reported this as papillary cystadenoma arising in aberrant thyroid tissue. The patient received postoperative roentgen therapy and there is no evidence of recurrence one year after operation.

Case 11.—I. B., a man, aged 32, was examined in June, 1930, because of swellings in the neck. For two years he had noticed a round, nontender swelling in the suprasternal notch. There was a second smaller swelling in the midline under his chin. On examination a cyst 2 by 2 cm. was demonstrated at the level of the hyoid bone in the midline. There was a second swelling 6 by 6 cm. in the suprasternal notch which was freely movable and firm (fig. 8). The diagnosis of thyroglossal cyst and dermoid cyst was made. At operation the upper swelling proved to be a typical thyroglossal cyst, and it was removed with a radical operation. On exposure of the lower mass it was found to be dark blue, coarsely lobulated and cystic. It was located above the sternothyroid and sternohyoid muscles and appeared to have a small pedicle extending below them. The thyroid gland was not involved. There were no other glands. The pathologist reported the upper tumor to be a thyroglossal cyst and the lower one a papillary cystadenoma in an aberrant thyroid. The patient has received postoperative roentgen therapy and has had no recurrence of his thyroglossal cyst. There is no evidence of recurrence in the lower part of his neck one year after operation.

Case 12.—Miss M. F. T. P., aged 48, was examined in July, 1930, because of deafness, sugar in the urine and indigestion. Ten months previously she had noticed a lump in the left side of her neck, and it had increased slightly since that time. On examination she was poorly nourished and there was a fusiform, nontender gland 3 by 2 by 2 cm. beneath the lower attachment of the left sternomastoid muscle (fig. 9). It was thought to be characteristic of the sentinal type of gland associated with carcinoma of the stomach. Roentgen studies of the stomach were negative. At operation the tumor was demonstrated beneath the lower portion of the sternomastoid muscle and beneath the omohyoid and in the area lateral to the common carotid artery and internal jugular vein. It was kidney shaped with a definite hilus, was reddish brown, and had superficial blood vessels and lobulation which suggested thyroid tissue. No other glands could be demonstrated. The thyroid gland was normal. The pathologist reported this as papillary cystadenoma. She received postoperative roentgen therapy and ten months after operation there was no evidence of recurrence.

Case 13.—Mrs. T. C., aged 30, came to the clinic in January, 1931, because of a goiter. She had noticed this swelling two years previously following her last pregnancy. For one year she had noticed increasing nervousness and irritability. There had been no loss of weight and no palpitation nor tachycardia. Her physical examination was essentially negative except for varicose veins and the local condition in her neck. There was a firm, regular mass beneath the insertion of the left sternomastoid muscle on the clavicle. A second nodule could be palpated in the upper pole of the left lobe of the thyroid. The right lobe felt normal. A preliminary diagnosis of metastatic carcinoma was made and a fluoroscopy of the stomach done to rule out this site as the primary origin of the tumor. This showed no evidence of disease. The subsequent preoperative diagnosis was aberrant thyroid. There was insufficient evidence for a diagnosis of hyperthyroidism. At operation the lower tumor was found behind and lateral to the internal jugular vein. In addition to the previously palpated mass, many of the deep cervical lymph glands were found enlarged by the same type of tumor. On exposure they had a deep, blackish tint and were smooth in outline. The glands were removed by a radical block dissection of the left side of the neck, the internal jugular vein being removed. Following this, the tumor was removed from the upper pole of the left lobe of the thyroid. The right lobe was normal. The nodule in the thyroid appeared to have the same characteristics as those of the lateral cervical tumors. The pathologist found the thyroid nodule to be malignant, papillary cystadenoma and reported the same type of structure in all the lymph nodes. There was invasion of the blood vessels in these nodules. This last operation was performed four months ago and she is at present receiving roentgen therapy.

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ABSTRACT OF DISCUSSION

Dr. C. A. Roeder, Omaha: When a ligature is placed on the superior thyroid artery, there often is an impulse shooting up the sympathetic plexus to the superior cervical ganglion, which is connected with the first, even the second spinal nerve. From here there is a spill-over into the sensory root of the trigeminal, producing pain in the lower teeth. That might be called a thyromandibular reflex. This is of some importance because the pain occassionally may persist for several weeks. The vagopinna reflex is of extreme importance because it indicates that the internal branch of the superior laryngeal nerve is involved in a ligature or clamp. This reflex passes into the ganglion of the trunk of the vagus and on through Arnold's nerve, and ends in Alderman's nerve, producing pain in the lower portion of the pinna, which may persist for several weeks. Traction alone on the superior pole will often produce this reflex. In regard to cases of toxic thyroidism without an increase in metabolic rate, this slide shows a man who had a progressive exophthalmos for one year without any signs of toxic thyroidism. In the meantime, his right orbit was explored by an eye surgeon in search of an orbital tumor. After the condition had been present for one year, the other eye started to protrude and at this time he came into the dispensary, complaining of weakness of only a few weeks' duration. He might have been in the so-called neurocirculatory asthenic state, but he continued his occupation as a truck driver and did not complain of anything during the first year. A girl who had a progressive exophthalmos for eight months or so beforehand, with a negative metabolic rate and no signs of hyperthyroidism or hypermetabolism, the condition being present for six or eight months, now has the other eye protruding. The thyroid is slowly enlarging. The metabolic rate is practically normal, close to zero. Too much reliance must not be placed on one metabolic reading. The average metabolic test in the average hands is of uncertain value and hypermetabolism, hyperthyroidism and toxic thyroidism should not be considered synonymous. In regard to aberrant thyroid, I have never had a case in my experience and naturally cannot say anything about it. This presentation has been most instructive.

Dr. William Barclay Parsons, Jr., New York: I have refused to operate on a number of patients whose symptoms, although closely simulating hyperthyroidism, seemed to be on a basis of psychoneurosis, but who showed a definite preference for hot rather than for cold weather. This is of course not a definite diagnostic point but is often extremely suggestive and may help in reaching a definite diagnosis, as thyroid surgery is not particularly satisfactory in psychoneurotic patients. The evaluation of results in hyperthyroidism, involving as it does individuals of a high degree of nervous organization, is an extremely difficult thing. The vast majority of results that one sees in the literature have been based, unfortunately, on letter reports. Of course in many instances that is all that one can get; but the personal return visit gives one the only accurate idea of what has happened in these cases. In looking over the reports of some cases recently, I was interested to find that a fairly large percentage showed a gradual improvement continuing over a period of time. In about 200 patients, 74 per cent were satisfactory at six months; by one year there were 80 per cent; and at two and three years, this figure had increased to 82 and 89 per cent, the term "satisfactory" being used only for patients with a normal metabolic rate and pulse and a complete return to economic activity. Individuals of age, of long duration of symptoms, with definite cardiac involvement, congestive heart failure, or whatever condition happens to present itself, in my opinion certainly require the graded operations to give them the greatest possible safety. The whole question of malignancy of the thyroid comes into the discussion of tumors of aberrant thyroids. Malignancy of the thyroid is, of course, extremely difficult to diagnose, even microscopically, as there is a large group of borderline cases in which pathologists of considerable experience will not agree on the diagnosis. The removal of adenomas of the thyroid before they have undergone malignant transformation has saved many individuals from carcinoma, and presumably the same holds true with the similar tumors in the aberrant thyroid tissue.

Dr. Frank H. Lahey, Boston: It is a confusing situation to any one who has not had previous experience to find dark discolored tumors in the neck and not to realize that they are aberrant thyroids. They are even as dark, sometimes, as the melanotic sarcomas. It is well to realize that this type of aberrant thyroid which occurs up and down the internal jugular, is often the forerunner of a malignant tumor. It probably explains, as well as the branchial remnants, the origin of primary carcinoma in the neck, and indicates definitely the need of the removal of this type of tumor. I have repeatedly made this statement, that, when one fails to cure patients by operation for hyperthyroidism, either the patients did not have hyperthyroidism in the beginning or not enough thyroid tissue was removed. There is a group of patients in whom a condition exists which simulates thyroid disease and concerning which our medical department has been warning us of late. These are the patients with hypertension. The patient with hypertension has stare and frequently a little exophthalmos; he often has tachycardia and myasthenia and he has a slightly elevated basal metabolism. It is very easy, if he has a goiter, to operate on him under the diagnosis of hyperthyroidism. Therefore, all patients who are borderline patients without striking clinical evidence of hyperthyroidism and who have hypertension should be under suspicion that their symptoms are due to hypertension and not to hyperthyroidism. The same thing is true of neurotic patients, whatever the origin of their condition may be. All patients who lack frank clinical evidences of hyperthyroidism should be under suspicion that they are not patients suffering from hyperthyroidism, and those are the patients in whom basal metabolism determinations should be made repeatedly, and who should have established whether their metabolism remains persistently elevated day after day or tends toward normal. Certainly if one would maintain in a thyroid clinic a series of good results, one must be highly critical of the patients who lack striking clinical evidence of the disease. As to how much thyroid tissue to remove, when a man talks about removing four fifths of the thyroid or five sixths of it, it means that he has not had enough experience in thyroid surgery. There is no fixed rule about how much to remove. One should leave a good deal of thyroid tissue in young children because they need their thyroid tissue for development and they mustn't get myxedema. One should leave a good deal of thyroid tissue in elderly people because old age is related to a slowing up of the activity of the thyroid. Of all the patients who have exophthalmic goiter of the hyperplastic type, in about 90 per cent or a little more the gland will involute with iodine in the form of compound solution of iodine given preoperatively. If one does radical removals in this group in which the gland has involuted well, one will have a high percentage of myxedema. In the remaining 10 per cent in whom the gland does not involute, if one does not do radical removals one will have a high percentage of persistent hyperthyroidism. All this question of hyperthyroidism is based on experience with trial and error. Hyperthyroidism is a disease associated with intangible nervous symptoms. The borderline cases are susceptible of many errors. Therefore, the physician must have in mind always that the burden of proof of conditions due to hyperthyroidism in borderline cases is on himself, and when in doubt he should not operate on these patients on suspicion. They must show definite clinical evidence or persistently elevated basal metabolism rates. When they show that, when one does radical operations on the uninvoluted thyroids and conservative operations on the involuted kind, then one will get good results and one will not have these annoying neurotic patients returning repeatedly and complaining that they are not well postoperatively.

Dr. R. S. Dinsmore, Cleveland: I have found that if a patient comes into the hospital and the pulse curve drops to normal over night, the case is not likely to be one of hyperthyroidism. The typical hyperthyroid patient will have an afebrile tachycardia which will gradually come down to a base line. It is well to remember in a case of acute hyperthyroidism and delirium that, if the delirium has lasted over a period of seventy-two hours, a fairly large percentage of these patients will die in spite of all therapy. I have made it a rule never to operate on a patient who has had a recent psychosis or delirium, but to wait for at least three or four weeks.

Dr. Michael G. Wohl, Philadelphia: Among embryonal tumors of the neck, aberrant thyroid is the most uncommon and is least often diagnosed. Aberrant thyroid usually implies a tumor that is found along the path of embryologic development of the thyroid. This excludes thyroid tissue found in the pleura, abdominal cavity or bone. This is a striking anomaly of pathologic thyroids, especially when a single colloid goiter may be harmless for years and give rise to metastases. In 1917, I was able to collect from the literature reports of twenty cases of tumors of the lateral aberrant thyroid, and I added one case of my own. Billings and Paul since then have reported an additional case and have brought the total number up to thirty-four. The patient whom I had under observation was a girl, aged 19, with a small lump on the right side of the neck, of two years' duration. It was located on a level with the hyoid cartilage beneath the anterior edge of the right sternocleidomastoid muscle. It consisted at operation of five nodules, varying in size from that of a pea to that of a pecan. The microscopic diagnosis was adenocarcinoma. The patient was operated on, the tumor removed, and she was symptom free for two years, after which she was lost to observation. From a theoretical point of view, the occurrence of these tumors in misplaced thyroid tissue emphasizes the frequency with which embryonal tissue is capable of proliferation. The answer, however, is not furnished as to why in one case it proliferates to form a benign adenoma and in another instance a rapidly growing carcinoma. It is worth emphasizing that in most instances of pathologic changes of the lateral thyroid, the thyroid gland proper is healthy and remains free from involvement, except in the case mentioned by Dr. Cattell, in which he said that there was an exophthalmic hyperplastic proliferation in disease of the main thyroid. It is also important to bear in mind that in finding carcinoma in the lateral aspect of the neck, one should rule out the possibility of its being metastatic of the thyroid itself. Although lateral aberrant thyroid is rare, it must be taken into consideration in the differential diagnosis of tumors of the neck. Dr. Cattell is to be congratulated for having the largest single collection of any one of whom I know. I am glad to hear him state that he was able to make a preoperative diagnosis. In making a diagnosis of a lateral aberrant thyroid, one must consider other conditions, as Hodgkin's disease, lymphosarcoma or some other condition of the lymph node.

Dr. M. S. Muskat, Cincinnati: The basal metabolic rate can be specific of hyperthyroidism if properly and carefully executed. Tests must be performed on at least two different days before one issues a report. There are two points that may help to establish a diagnosis. In the first place, many patients come to the physician after already having taken iodine in one form or another, and unless a specific question and investigation is made one may not determine that. The patient will give a history of nervousness, loss of weight, tachycardia, and so on, but he may have had iodine recently; if following the recent ingestion of iodine, a basal metabolic test is made, the rate may be normal or even subnormal, even though it originally had been plus 15 or plus 20. Perhaps after the patient has taken iodine for only a week, the basal metabolic rate is within so-called normal limits or on the normal side. It is important to find out whether the patient has had iodine. In the borderline, doubtful cases, there is another agent that may sometimes be of value. After the patient has had bed rest, bromides, phenobarbital or some other sedative drug, or has been given digitalis to determine whether there is some heart condition, then one should give iodine as a definite therapeutic test, anywhere from three days to two weeks, and should check the patient's basal metabolism rate during that time. The basal pulse rate also should be watched as well as the pulse pressure relationship, and that may give one an additional aid to prove or disprove the presence of hyperthyroidism. There are many patients who have a basal metabolism rate of minus 15 or minus 20 or even more, who are apparently normal. At least it is conceivable that these persons may get hyperthyroidism and their basal metabolism rate may be found to be plus 5 or plus 10 or plus 15, which is considered normal but for them it may be a plus 20 or plus 30 elevation. So I think that here again there must be a definite iodine therapeutic test, checked by the basal metabolism rate, which may be of value in ruling out such cases. I have observed definite cases in which the patients have been benefited by such management.

SUPRAPUBIC PROSTATECTOMY WITH CLOSURE OF THE BLADDER*

ALEXANDER HAMILTON PEACOCK, M.D.
SEATTLE

[Editorial Note.—This paper, together with the paper of Dr. Edwin Davis and the discussion, concludes the symposium on prostatectomy. The papers of Drs. Lowsley and Kirwin and Dr. T. M. Davis were published last week.]

The primary object of prostatectomy in benign hypertrophy is to remove the obstructing adenomatous gland and to reestablish free urethral drainage with the least shock and the lowest mortality.

Before these operations are started a complete study of the patient with days or weeks of preparation is necessary with functional tests, urographic studies, the cardiac estimations, and getting the gastro-intestinal tract into good functional condition. This phase of prostatectomy, its preparation, is the foundation for the tremendously lower mortality over that of twenty-five years ago.

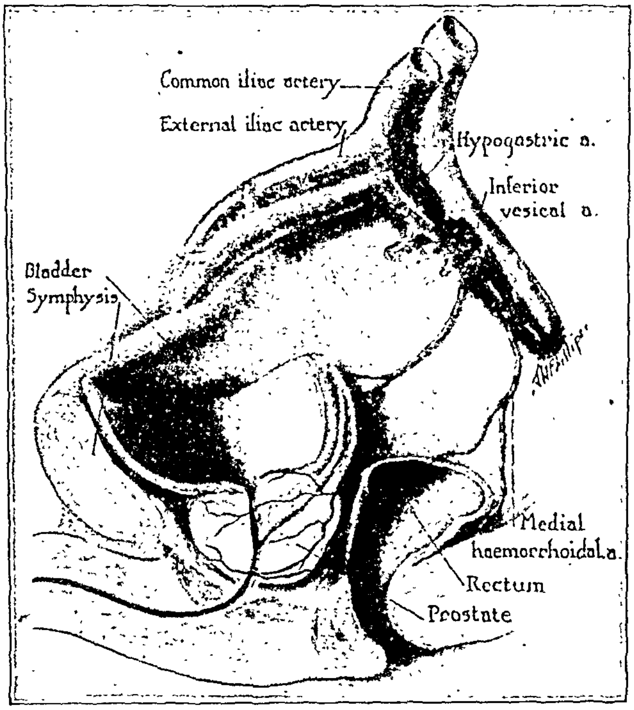

Fig. 1.—Sagittal section of the prostate gland, showing its chief blood supply.

And with each year have come refinements in surgical technic which have been instrumental in producing better functional results, reducing complications, making convalescence more comfortable and operations safer. In the past five years two advances have been made in suprapubic surgery of the prostate; namely, hemostasis of the prostatic cavity by suture, and closure of the urinary bladder. The surgeons who have made these contributions are Thomson-Walker, Deaver, Lower, Judd and Harris.

It is my object in this paper to show that this operation of suture and closure is not unusually difficult, that special instruments are not necessary, and that the technic is surgically correct. The most gratifying result of suturing of the capsule is the immediate control of bleeding. The chief blood supply of the prostate is furnished by the inferior vesicle and the medial branch of the hemorrhoidal arteries. These vessels enter the prostate laterally near the base of the trigon and below the ureteral orifices. Once in the capsule they curve around the prostate and become almost submucous. This accounts for hemorrhages that not infrequently accompany prostatic hypertrophy.

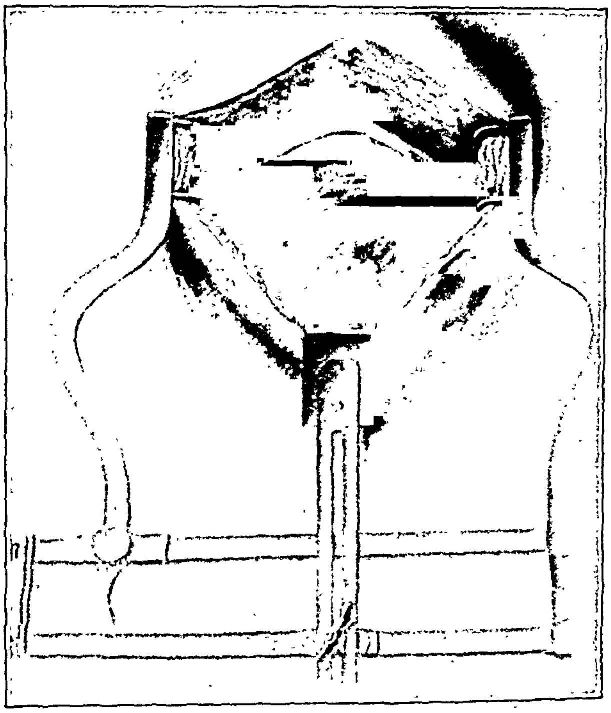

Fig. 9.—Peacock self retaining bladder retractor in position.

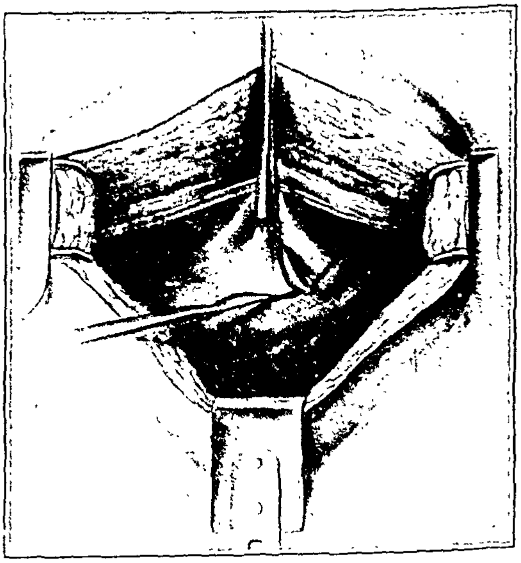

Fig. 10.—The prostate held with a tenaculum and the mucous membrane incised. A catheter marks the internal urethral orifice.

In order to close the bladder, two conditions must be obtained: first, complete hemostasis and, second, unobstructed urethral drainage. How have these conditions been brought about?

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* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

* Because of lack of space, this article is abbreviated here by the omission of several illustrations. The complete article appears in the Transactions of the Section and in the author's reprints.

The enucleation of the hypertrophied prostate can be accomplished by separating the gland in toto or into its several parts by means of the fingers or instruments. Some surgeons, as Judd, grasp the prostate with a tenaculum and with a knife or scissors cut the mucous membrane overlying the central lobe; while others tear through the internal urethral orifice, find the capsule and gradually work the prostate free. After the gland has been lifted out of its capsular bed, a cavity is left with ragged edges. This cavity is outlined by a rim which consists of mucous membrane of irregular thickness and is usually torn laterally in several places.

The early method of controlling bleeding from this cavity was packing it for a few minutes, and then depending on the normal contraction of the prostatic capsule, plus clotting. Packing the capsule with strips of gauze was next in order; then rubber bags inflated with air or water of the Pilcher or Hagner type were employed to compress the edges of the capsule against the prostatic bed. At times pressure from bags or gauze fails completely to control bleeding. These agents at times hold the edges of the capsule apart and thus interfere with its normal shrinkage.

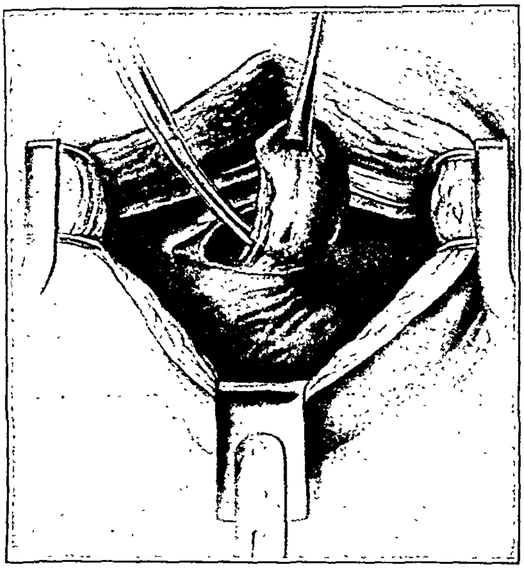

Fig. 11.—Removing a fibroma with scissors.

The next improvement was to bring forward an edge of the capsule and suture it to the end of the severed urethra. The first published article on this step was by Deaver.[1] A few months later S. Harry Harris[2] of Sidney, Australia, gave his technic in the *Medical Journal of Australia*. The various methods of suturing the capsule in their order of publication are as follows:

1. Deaver[1] has an assistant insert a finger in the rectum and push up the prostatic floor. The edges of the capsule are grasped and sutures are made radially to the severed urethra. A soft rubber catheter in the urethra and a suprapubic drainage tube complete the operation. The latter tube is removed when the urine clarifies. Healing is reported in from ten to fifteen days.

2. Lower[3] for years has closed the urinary bladder after operations for calculus and tumor. He handles the prostatic cavity by placing a catheter in the urethra. He places one transverse suture through the edges of the capsule below and three above it. These sutures consist of a thread with a small curved needle on each end; one needle starts at the median line and makes a dot and dash through the prostatic bed to the right, while the other is similarly placed on the left.

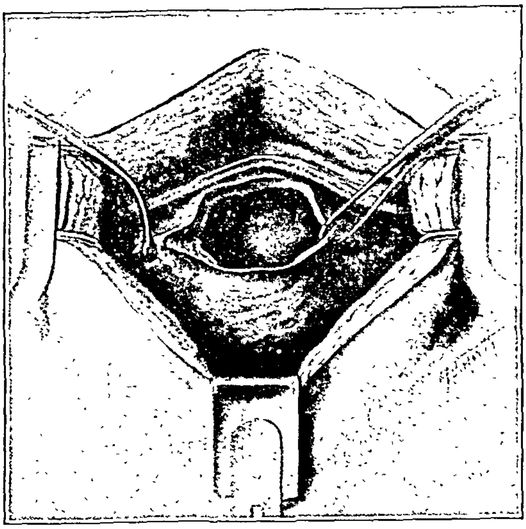

Fig. 12.—The prostate has been enucleated, leaving a cuplike cavity. The edges of the capsule are held with a tenaculum.

3. Judd[4] has popularized the open method of prostatectomy, making a long incision, and wide retraction of the bladder. The prostate is held with a tenaculum and largely enucleated with the aid of instruments. Interrupted chromic sutures are placed in the edge of the capsule. After insertion of a catheter in the urethra, the bladder is closed with a running suture.

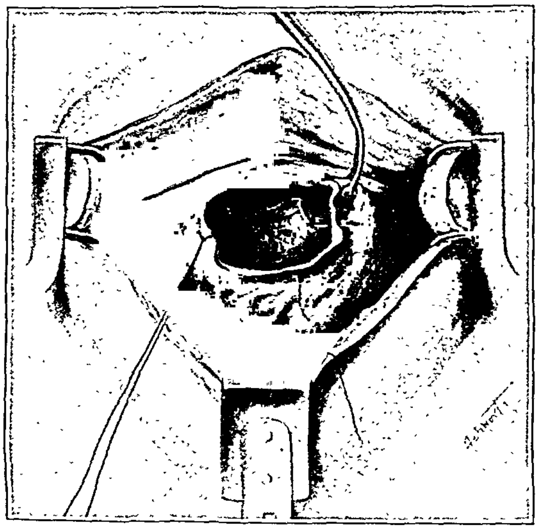

Fig. 13.—Suturing the prostatic bed and capsule.

4. Harris[5] first inserts two lateral sutures in the edge of the capsule. He next puts a suture in the median capsule edge through the floor to the end of the urethra. When tied, this draws a tongued shaped piece of capsule forward. Harris stresses this bringing of the

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[1] Deaver, J. B.: Closure of Prostatic Bed in Suprapubic Prostatectomy, Ann. Surg. 88: 118 (July) 1928.

[2] Harris, S. H.: M. J. Australia 2: 288 (Sept. 8) 1928.

[3] Lower, W. E.: Complete Closure of Bladder Following Prostatectomy, J. A. M. A. 89: 749 (Sept. 3) 1927.

[4] Judd, in Cabot, Hugh: Modern Urology 1: 636.

[5] Harris, S.: Brit. J. Urol. 1: 285 (Sept.) 1929.

capsule to the urethra. This part of the operation is not always practical, as the distal portion of the urethra retracts well forward under the pubic arch. The major portion of the prostatic capsule, however, can be tacked down to its new floor and early epithelization of the new urethra is accomplished. Now two transverse sutures are placed anteriorly through the capsule and a catheter is slipped through the urethra. A suture is run through the eye of the catheter and brought up through the abdominal wound. The bladder is now sutured and the incision of the abdominal wall is closed without drainage. Harris depends on Young's boomerang needle and holder to place his prostatic sutures. He also uses a retractor, the blades of which are equipped with electric lights. He reported excellent results in a series of 118 cases at the Pan Pacific Surgical Conference in Honolulu, T. H., in August, 1929.

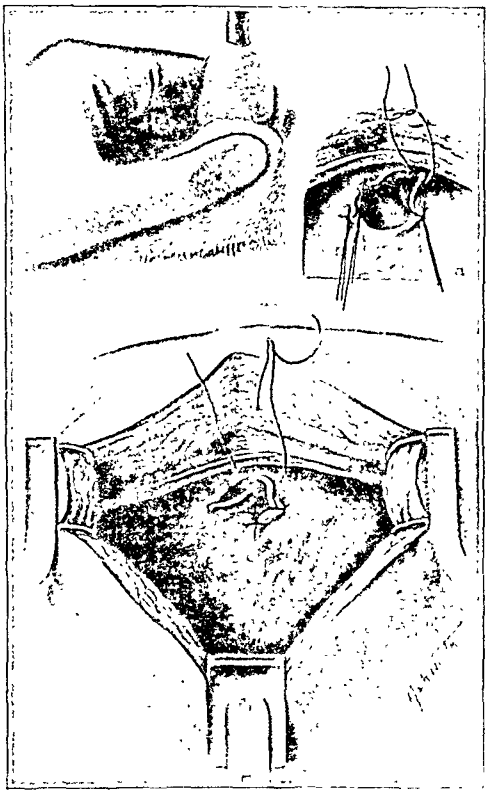

Fig. 14.—Sutures in prostatic capsule reconstructing internal urethral orifice; metal sound in urethra as a guide.

5. All will agree that no operation can be standardized. Wide variations in anatomy, pathology and the condition of the individual tissues call on the ingenuity, experience and judgment of the surgeon. Good exposure is possible in one operating field and very poor in the next. So, in treating the capsule after prostatectomy, different methods of suturing will be necessary from time to time. I have used the Harris technic with some modification in fifty patients, none of whom experienced secondary bleeding.

It has been found that illuminated retractors are not essential to good vision of the prostatic bed. Spinal anesthesia produces a degree of relaxation of the abdominal muscles impossible with any other type of anesthesia. I have modified the self retaining Balfour abdominal retractor by putting on 4 inch L shaped wire blades, which allows the blades to slip under the pubic arch and separate widely the walls of the bladder. It gives a most excellent exposure of the entire bladder. The Young boomerang needle and holder seems almost indispensable in some cases, while in many others an ordinary long needle holder and short curved needle perform just as well or better.

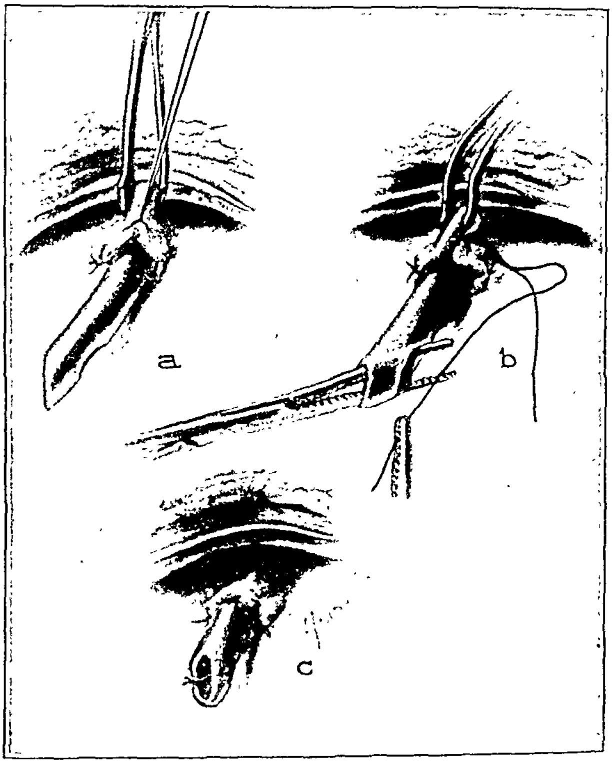

Fig. 15.—Securing the vesical end of an indwelling whistle tip catheter: *a*, one of the prostatic capsule sutures is used for an anchor; *b*, pulling the suture through the eye; *c*, suture tied.

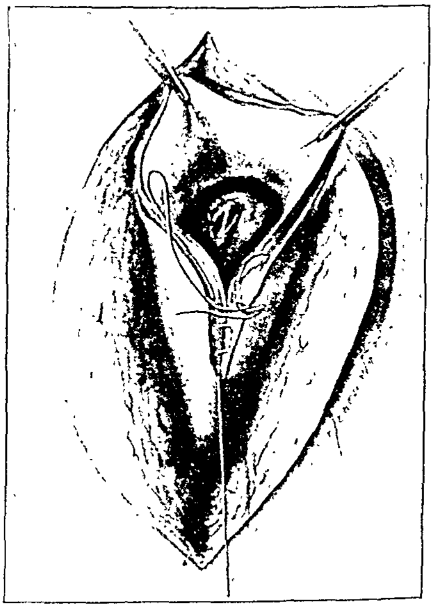

Fig. 16.—Closing the bladder with two layers of Lembert suture.

A number 26 or 28 French whistle tipped catheter gives the best drainage. To anchor it one of the prostatic sutures is used, the ends being passed through the eye of the catheter. As these are of plain catgut, the catheter can be pulled out after three or four days and a smaller one inserted in its place. The bladder is best closed with a double row of Lembert sutures. No drainage of any kind is employed.

RESULTS

The operation in the majority of these fifty cases was done in two stages from seven days to five months apart. The average interval was two weeks. Wounds seemed to heal as well after the second stage of the operation as they did at the first.

The average time for the indwelling catheter was ten days. The incidence of epididymitis was much less with the use of the catheter than without it. This is probably due to much better drainage of the bladder.

The incidence of wound leakage was small. When it did occur, it was very slight and usually indicated an obstructed catheter. The comfort of the patient, the freedom from wet dressings, and the saving in gauze and cotton was considerable.

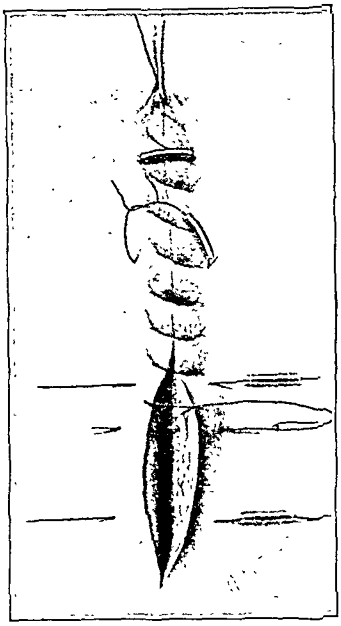

Fig. 17. The skin incision is repaired with interrupted silkworm and dermal sutures, without drainage.

The average time when normal voiding became established was twelve days.

SUMMARY

1. The success of primary closure of the urinary bladder depends on perfect hemostasis of the prostatic bed and good drainage by catheter.
2. Suture of the capsule is surgically correct and can be performed by ordinary surgical skill and instruments.
3. Primary closure of the bladder affords a shorter and more comfortable convalescence.
4. Suture of the prostatic capsule produces better anatomic and functional results.
5. With this method, postoperative bleeding has been practically eliminated.
6. The sloughing postoperative wound is a thing of the past.
7. Objections raised to closure of the bladder can be refuted by the good results of those surgeons now employing the closed method of suprapubic prostatectomy.

1215 Fourth Avenue.

Monsters.—Malformed fetuses have been produced by subjecting the embryo to certain chemicals. Potassium arrests the development of the heart, and sodium produces spina bifida. Scammon wrote that it has been shown that embryonic duplications of all grades and degrees may be produced in certain vertebrate embryos by changes in temperature, by subjection to the x-rays and ultraviolet rays, by pressure, by mechanical separation, by changes in the salt concentration and oxygen content of the surrounding medium, and by a number of other experimental procedures.—Reid, W. D.: The Causation and Prevention of Congenital Heart Disease, *Arch. Int. Med.* 48:721 (Nov.) 1931.

SACRAL BLOCK ANESTHESIA IN PERINEAL PROSTATECTOMY

ITS INFALLIBILITY WHEN ACCURATELY ADMINISTERED *

EDWIN DAVIS, M.D.
OMAHA

It is my purpose in this brief presentation of facts and figures to attempt to justify the title, to the end that sacral block anesthesia in prostatectomy may receive wider recognition, in place of spinal anesthesia and the various forms of general anesthesia, none of which are so free from hazard.

The term sacral block anesthesia, as here employed, refers to the injection of the sacral canal through the sacral hiatus (caudal anesthesia) and, in addition, the injection of the first, second and third posterior sacral foramina on either side. In the total series of 378 cases here reported, each patient received 40 cc. of freshly sterilized solution of procaine hydrochloride 1 per cent through the sacral hiatus, and 10, 8 and 5 cc., respectively, through the first, second and third sacral foramen, on each side. This amount has been employed because it has been found to serve the purpose satisfactorily and without causing any reaction of consequence. Perhaps less would suffice. Details of technic have been purposely omitted since this subject has been covered elsewhere, by a number of authors; more recently and in a complete and detailed manner by Lundy.[1] In no instance in the entire series has any other drug been added to the routine solution of plain, freshly sterilized 1 per cent procaine hydrochloride.

CONFLICTING OPINIONS IN LITERATURE

An excellent historical summary, dealing with the development of sacral block anesthesia, has recently been published by Bumpus.[2] This, there could be no purpose in duplicating. In the present article I shall make a minimum number of quotations from the literature, sufficient to illustrate certain points. With respect to the efficiency of sacral anesthesia, the outstanding impressions which one has after a detailed review of the literature, are as follows:

1. The opinion is widely prevalent that sacral block anesthesia has a certain inevitable proportion of failure (averaging about 15 per cent).

2. There is a surprising discrepancy in opinion on this subject which may be explained, in part, as the result of a confusion in terms between caudal anesthesia and complete sacral block.

3. In general, those reporting excellent results, with a negligible percentage of failure, are those who have had a wide experience with this method of anesthesia.

Illustrating the proportion of failure to anesthetize by the caudal method are the figures from the Brady Clinic published by Berry,[3] who reported 16 per cent failure in 165 consecutive cases, 140 of which were prostatectomies. Shaw[4] had previously reported (also from the clinic of Dr. Hugh Young) 17 per cent of failure in 100 consecutive cases. These figures, however, do not accurately represent the results obtained by the sacral block method, since in each of these series the anesthesia consisted merely of a single injection through the sacral hiatus (caudal anesthesia), using a small volume of a concentrated solution (20 cc. of 3 per cent solution of procaine hydrochloride). Scholl's [5] paper, published in 1921, reported 10 failures in 150 cystoscopic manipulations, and included the statement that "most writers report a fairly high percentage of failure." Bransford Lewis, in discussing Scholl's paper, estimated his own failures at 15 per cent. In their original publication on the use of caudal anesthesia, in 1916, Lewis and Bartels [6] reported 13 prostatectomies with 3 failures and 68 cystoscopic manipulations with 22 failures. Lynch [7] (1918) reported 80 rectal cases with 16 failures, and Brenner [8] 12 failures out of 120, most of which were rectal cases. The latter author included the statement that "all observers report some percentage of failure." In keeping with these opinions is the statement of Labat,[9] with respect to the simple caudal injection, that, although the percentage of failure may be reduced, "it is obvious that there are failures which are unavoidable and uncontrollable, to which no remedy will ever be brought." Labat, however, makes a sharp distinction between caudal anesthesia and sacral block and states that the latter procedure "never fails to produce the desired result."

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* From the University of Nebraska College of Medicine.

* Read before the Section on Urology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Lundy, J. S.: Method for Producing Block Anesthesia of Sacral Nerves, Am. J. Surg. 4:262 (March) 1928.

[2] Bumpus, H. C.: History of Regional Anesthesia in Urology, J. A. M. A. 96:83 (Jan. 10) 1931.

[3] Berry, G. P.: Caudal Epidural Anesthesia in Perineal Surgery of the Genito-Urinary Tract, J. A. M. A. 90:1018 (March 31) 1928.

[4] Shaw, E. C.: Epidural Anesthesia for Perineal Prostatectomy, J. Urol. 15:219 (March) 1926.

Of interest by way of illustrating the discrepancies in the opinion on this subject are the statements by Babcock [10] and by Harris [11] in consecutive chapters of the same volume of Oxford surgery. Estimating the efficiency of "high sacral anesthesia" at only 45 per cent, Babcock adds that "it is evident that it [sacral anesthesia] has such limitations that only very devoted enthusiasts will have the patience to continue its use," while Harris considers that "blocking of the sacral plexus by intrasacral injection is one of the most satisfactory procedures in the field of local anesthesia." They cannot both be right. It is likely, however, that these contradictory opinions may be partially explained on a terminology basis.

It may be judged from the foregoing that the general impression concerning the unreliability of the sacral method may be largely due to the published results following the use of the simple caudal injection, rather than the complete sacral block. Lundy's [12] report (1927), including 318 cases of suprapubic prostatectomy, in which the sacral block method (together with infiltration of the anterior abdominal wall) was employed, shows the excellent results which may be obtained by this method. In this series, 96.5 per cent were successful, in 1.7 per cent supplementary general anesthesia was necessary, while in an additional 1.7 per cent Lundy considers that general anesthesia should have been used. Lowsley [13] has expressed the opinion that the sacral block method gives perfect anesthesia for perineal prostatectomy in 95 per cent of cases. Meeker and Scholl,[14] in 1924, reported a series of 1,817 cases of sacral block anesthesia with 5.33 per cent failure. Of these, 270 were for prostatectomy, with 5.92 per cent failure. The report of Widenhorn,[15] published in 1929, includes 115 cases of prostatectomy, with six anesthesia failures.

PERSONAL EXPERIENCE WITH SACRAL BLOCK ANESTHESIA

My own former impression relative to the efficiency of the sacral block method may be best expressed by the following quotation from a paper I [16] read in 1924:

> There occurs a certain small but constant percentage of failure to obtain complete anesthesia. This percentage decreases as technic improves, yet this fact constitutes probably the most serious objection to sacral anesthesia. There are several factors tending toward poor or indifferent anesthesia, which may be eliminated by careful technic. Certain cases of failure are due to the fact that the operator has not succeeded in introducing the needle through the hiatus and into the lumen of the sacral canal. It is even possible to make the mistake of giving the injection into the subcutaneous tissues dorsal to the sacrum.

This paper included a series of thirty consecutive cases of perineal prostatectomy with seven anesthesia failures, or 23 per cent. At that time a certain percentage of failure was regarded as inevitable, even with the complete block method. In addition to faulty technic, various explanations were offered by different observers. These included (1) anatomic variations, preventing the introduction of the needles; (2) physiologic variations, such as an "immunity" to procaine hydrochloride; (3) decreased permeability of the neural sheaths; (4) increased capacity of the bony canal of the sacrum; (5) failure to use a sufficiently concentrated solution, and (6) an increased amount of fibrous and fatty tissue in the sacral canal, preventing intimate contact between the procaine hydrochloride and the nerve trunks. The real and only reason for these failures, however, is failure to place the needles accurately and unquestionably in the lumen of the canal and of the foramina. This statement is borne out by the figures cited hereafter.

The series here presented consists of 378 consecutive cases of perineal prostatectomy, similarly handled. Each patient, without exception, received sacral block anesthesia, consisting of a caudal injection, and injection of the first, second and third posterior sacral foramina, as already outlined. As indicated in table 1, the percentage of anesthesia failure, which was very high early in the series (20 per cent in the first twenty-five cases), has shown a gradual decrease during the first hundred cases, and has now come to be nil. The total number of failures in the first 100 cases was 12, of which 9 occurred during the first 50. Since the first 100 cases there has been one failure only (case 149), and, following this, there have been 229 consecutive cases without a failure, in a series which is as yet uninterrupted.

As here employed, the term "sacral anesthesia failure" means that supplementary inhalation anesthesia was necessary. Every case in which nitrous oxide or ether was employed has been counted, whether used throughout the operation or whether "only a few whiffs" were given, and whether the general anesthesia was necessary because of actual pain or merely for "psychic" reasons. During the 365 operations in which the anesthesia was considered successful there was neither an ether mask nor a nitrous oxide apparatus in the room. There is therefore no occasion for classifying these anesthesias as successful and "fairly successful." Each anesthesia was a complete success or a complete failure, as determined by whether or not the operation was completed without supplementing inhalation anesthesia.

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[5] Scholl, A. J.: Sacral Anesthesia in Urology, J. Urol. **6:** 149 (Aug.) 1921.

[6] Lewis, Bransford; and Bartels, Leo: Caudal Anesthesia in Genito-Urinary Surgery, Surg. Gynec. Obst. **22:** 262 (March) 1916.

[7] Lynch, J. M.: Sacral Anesthesia, Am. J. Surg. **32:** 57 (April) 1918.

[8] Brenner, E. C.: Sacral Anesthesia, Ann. Surg. **79:** 118 (Jan.) 1924.

[9] Labat, G.: Brit. J. Anesth. **3:** 5 (July) 1925.

[10] Babcock, W. W.: Chapter on Spinal Anesthesia, Oxford Loose Leaf Surgery, New York, Oxford University Press **1:** 167, 1920.

[11] Harris, M. L.: Chapter on Local Anesthesia, Oxford Loose Leaf Surgery, New York, Oxford University Press **1:** 136, 1920.

[12] Lundy, J. S.: Regional Anesthesia for Operations in the Urinary Bladder, J. Urol. **17:** 525 (June) 1927.

[13] Lowsley, O. S.: Embryology, Anatomy and Surgery of the Prostate Gland, Am. J. Surg. **8:** 526 (March) 1930.

[14] Meeker, W. R., and Scholl, A. J.: Sacral Nerve Block Anesthesia, Ann. Surg. **80:** 739 (Nov.) 1924.

[15] Widenhorn, H.: Die Sakkralanästhesie in der urologischen chirurgie, Deutsche Ztschr. f. Chir. **216:** 163, 1929.

[16] Davis, Edwin: Perineal Prostatectomy, with Particular Reference to Sacral Anesthesia and to Hemostasis, J. A. M. A. **83:** 1988-1993 (Dec. 20) 1924.

The feature of practical interest is the gradual decrease in the percentage of failure during the first hundred of the series. In all cases the same operation was performed and the same position on the table was employed. Also the same amount of the same drug in the same concentration was used, as well as the same type of needle and, as nearly as it was humanly possible to determine, the same technic of injection. That is to say, there has been no deliberate modification of technic. The same anesthetist has performed the injections in all cases. Therefore, since all these controllable factors have been constant, the only permissible conclusion is that success or failure is wholly dependent on whether or not the needles have been accurately placed within the caudal canal and the sacral foramina, and on no other factor. There is therefore no occasion for further reference to the percentage of inexplicable failure with sacral block anesthesia. If the anesthetist searches, and continues to search, for the foramina until he finds them and knows that he has found them, the anesthesia will be successful. The percentage of success is therefore a matter of practice and perseverance.

TABLE 1.—*Failures in Sacral Block Anesthesia in Perineal Prostatectomy**

	Failures	
Analysis of First 100 Cases:	Number	Percentage
First 25 cases	5	20
Second 25 cases	4	16
Third 25 cases	2	8
Fourth 25 cases	1	4
Total first 100 cases	12	12
Analysis of Total Series of 378 Cases:		
First 100 cases	12	12
Second 100 cases	1	1
Third 100 cases	0	0
Last 78 cases	0	0
Total 378 cases	13	3.4

Total number of failures in last 278 cases	1 (0.35 per cent)
Total number of failures in last 229 cases	0
Time necessary for complete block:	
Average	12½ minutes
Maximum	30 minutes
Minimum	4½ minutes

* Identical technic in all cases.

OBJECTIONS AND CONTRAINDICATIONS TO SACRAL BLOCK ANESTHESIA

It may be stated without reservation that the generally accepted opinion is that sacral block anesthesia is free from risk, as far as immediate mortality and remote complications are concerned. Furthermore, this statement with reference to freedom from risk applies not only to series reported by those who have had an extensive experience with the sacral block method but also to results obtained by those who employ this method only occasionally. I believe that no one who is informed would object to sacral anesthesia on a hazard basis. Including the series here presented and the total number of simple caudal injections given for various cystoscopic manipulations, my associate, Dr. C. A. Owens, and I have employed this method in well over 1,000 cases, without a fatality, and without a reaction of serious consequence. A discussion of the risk of sacral anesthesia is not complete without mention of the remote possibility of puncture of the dural sac or puncture of a blood vessel. The dural sac terminates at the level of the second sacral segment, so that puncture by a straight needle, introduced through the caudal hiatus, is a mechanical impossibility in the normal case. In order to be safe in cases presenting possible anatomic variations, however, the routine of aspiration before injection should be employed in each instance. I have seen tapping of the dural sac occur once in well over a thousand cases. The same precaution (preliminary aspiration) should be employed with the needle in each foramen, to exclude the possibility of intravenous injection.

The chief objection to the sacral block method is its supposed inefficiency and unreliability. There is no doubt that this objection to sacral anesthesia applies in certain other forms of pelvic surgery, particularly in those procedures involving traction on intraperitoneal organs. Employed in perineal prostatectomy, however, it may be demonstrated beyond question that sacral block anesthesia is wholly and entirely dependable, and that opinions to the contrary are erroneous, and based on too limited experience. Table 1 would seem to establish positively the fact that anesthesia failures (in this particular operation) are dependent on inaccurate technic rather than on some defect inherent in the method itself.

Another objection, from the point of view of the busy surgeon, is that too much time and trouble is supposed to be involved in making the injections into the caudal canal and the foramina (seven injections in all). There are two answers to this objection. In the first place, in whatever field of surgery the occasion for a decision between procedures or methods arises, the method of choice must be that which is safest and most efficient, regardless of the time and effort necessary. Secondly, the impression that the sacral block method is time consuming is erroneous. As determined by accurate records in forty consecutive cases, the average time necessary for making the complete block of seven injections is twelve and a half minutes. This is approximately the time necessary for the induction of ether anesthesia. The maximum time in an unusually difficult case was thirty minutes, and the minimum four and three-quarter minutes.

There is also the generally accepted opinion that there is the occasional individual whose mental make-up is such as to prevent the successful use of local anesthesia, for "psychic" reasons. It is recognized that excitable, nervous patients of this type may permit themselves to become so wholly under the influence of fear and apprehension as to be unable to distinguish between pressure and pain. More or less unsatisfactory anesthesia results are expected with this type of neurotic individual, with any operation done during consciousness. It may be that this objection applies with local anesthesia in general, or with spinal anesthesia, or with sacral block anesthesia in intraperitoneal pelvic surgery, or in surgery involving the dome of the bladder, but it does not apply with sacral block anesthesia in perineal prostatectomy. This series of 378 cases has included the usual percentage of exceedingly nervous and excitable, non-English-speaking Russian Jews. Every one doing surgical work is familiar with this type and knows how difficult it is to gain the confidence of one of these individuals. Since none of these were excluded from the series, and since each of these neurotic individuals went through exactly the same routine as the others, with only one-fourth grain (16 mg.) of morphine, and without general anesthesia, it is clear that nervousness or mental instability does not constitute an objection to the sacral block method.

I know of no contraindications to the use of sacral block anesthesia in perineal prostatectomy.

SACRAL BLOCK VERSUS SPINAL ANESTHESIA

I am not in a position to be able to express an opinion relative to these two methods, based on personal experience with both. The general impression is that spinal anesthesia carries with it a certain hazard of its own, and that a certain percentage of reaction is inevitable, a few of these being serious, and an occasional one fatal. On the other hand, Chute[17] has reported a total series of 840 prostatectomies, with "no immediate fatalities and no remote ones that could be attributed to spinal anesthesia." In discussing this paper, Lundy, who has had an unusually extensive experience with both methods, states: "It seems to me that sacral block is safer than spinal anesthesia." Regardless of how great the inherent hazard in spinal anesthesia may be, the figures reported by Dr. Chute clearly demonstrate that the percentage of mishap may be reduced to a very small minimum in proper hands.

Disregarding the hazard question, however, I believe that the opinion is permissible that the sacral block method (in prostatectomy) is preferable to the spinal method, on an efficiency basis alone. Analyzing the last 512 consecutive cases, Chute has reported that there were forty-three cases, or slightly more than 8 per cent, in which "a little supplementary anesthesia was employed." Barney and Shedden,[18] analyzing a series of 250 prostatectomies in the Massachusetts General Hospital from the anesthesia point of view state: "In any considerable group of spinal anesthesias, an incidence of nearly 10 per cent of spinal reactions is to be expected, of which some are fatal."

My own opinion, based on the general impression relative to spinal anesthesia in average hands and on figures here submitted, is that the sacral block method (in prostatectomy) is more safe and less subject to failure. Moreover, postoperative headache, occurring as a sequela of sacral block anesthesia, is an unheard of complication.

MORTALITY RATE IN PROSTATECTOMY

Since this paper has to do primarily with sacral block anesthesia, a discussion of operative technic and late functional results would here be out of place. It is essential, however, to include table 2, showing the mortality rate, because any given procedure may be justified only by the results obtained. As indicated, there has been a total of 9 deaths out of 378 consecutive cases of perineal prostatectomy, a mortality rate of 2.38 per cent. The largest number of consecutive cases included in this series without a death was 121. None of these deaths have been in any way associated with the anesthesia, since all occurred at intervals of from six days to several weeks after the operation, from such causes as late general sepsis, three cases; renal insufficiency, three cases; pneumonia, one case; pulmonary embolus, one case, and acute cardiac decompensation, one case. Of the three deaths due to general sepsis, two were considered to have been due primarily to lowered resistance secondary to profuse delayed hemorrhage, coming on as late as two weeks after the operation. In the entire series, however, there has been no death resulting directly from hemorrhage, either immediate or late.

This mortality rate represents a faithful and accurate recording of all deaths, due directly or indirectly to the prostatectomy, or occurring from any cause whatever, during the patient's stay in the hospital, with one exception as outlined later. Among the nine deaths there has been included one which occurred on the thirty-ninth postoperative day, in sepsis, associated with the formation of an abscess in the calf of the right leg. One additional death, which occurred on the fifty-first postoperative day (from renal insufficiency), I have considered could be honestly and properly excluded from the series, since the patient was up and fully dressed during the third postoperative week and had been given permission to return home. Although the incision was entirely healed and the urine passing normally through the urethra, the patient voluntarily chose to remain in the hospital awaiting more complete convalescence. Obviously this patient, able to walk, fully dressed, in the hospital corridor, had survived the prostatectomy.

Table 2.—*Perineal Prostatectomy Under Sacral Anesthesia: Immediate Results*

Total consecutive cases	378
Average age	70
Above 80	25
Deaths	9
Mortality rate (per cent)	2.38
Total consecutive cases with no deaths	121
Sacral anesthesia (consecutive cases without failure)	229
Rectal injury	2
Postoperative "shock"	0
Delayed hemorrhage (several days)	10
Epididymitis	42

FACTORS TENDING TO LOWER THE MORTALITY RATE OF PROSTATECTOMY

Chief among the factors tending to minimize the mortality rate in prostatectomy are (1) preliminary drainage, (2) the perineal route, (3) excessive care in hemostasis and (4) sacral block anesthesia.

1. Unquestionably, the most important of these factors is adequate and prolonged preliminary drainage. This item has been attended to with scrupulous care and rigid insistence. The rule requiring a minimum ten day drainage in all cases, regardless of apparent good general condition has not been deviated from in any instance. It was also insisted on that a ten day period of normal temperature precede every operation. In many cases the drainage period extended over several weeks and, in the occasional case, over several months. The suprapubic drainage route was employed in about 25 per cent of cases, in which the retained urethral catheter proved to be intolerable or inefficient, for one reason or another.

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[17] Chute, A. L.: The Use of Spinal Anesthesia in Urology, J. A. M. A. 96:88 (Jan. 10) 1931.

[18] Barney, J. D., and Shedden, W. M.: A Study of Anesthesia in Prostatectomy, S. Clin. North America 2:1093-1104 (Aug.) 1922.

2. Comparative figures show that the perineal route carries with it a lower hazard than does the suprapubic. It is my opinion that, if for no other reason, this is because abdominal distention or adynamic ileus, so common following suprapubic or abdominal operations, is comparatively rare following operations on the perineum, whether for prostatectomy or for other purposes. In the entire series, this distressing and serious postoperative complication has been conspicuously absent.

3. Immediate postoperative hemorrhage, in every case, has been controlled by means of a combination hemostatic and drainage bag, a detailed description of which has been previously submitted.[19] This rubber bag, inflated with air and maintained in place in the prostatic cavity by means of countertraction against the perineum (without traversing the urethra), provides hemostasis both during and after the operation. Also, in each case, a careful attempt was made to clamp and ligate bleeding points around the bladder neck. For the latter purpose, an excellent opportunity for deliberateness was provided by the elimination of the necessity for haste, as the result of the sacral anesthesia. Emphasis should be placed on the importance of minimizing the loss of blood, for the reason that it is undoubtedly true that, although comparatively few patients die as the direct and immediate result of hemorrhage, there are many fatalities occurring later because of lowered resistance and sepsis, resulting indirectly from the spilling of blood. These remarks refer merely to the control of immediate postoperative hemorrhage, occurring during the first two or three postoperative days. The control of immediate postprostatectomy hemorrhage would seem to be an almost solved problem. Delayed postoperative hemorrhage, however, occurring after a ten day or two week interval, often profuse and massive and coming on suddenly, in a patient considered to be out of danger, constitutes a grave menace and may be considered the chief problem connected with prostatectomy today. At any rate there is no other complication so serious, so unforseen, and which one is so wholly unable to prevent. Fortunately, this is a rare complication (approximately 2 per cent), and one which might well pass unnoticed in a small series.

4. Sacral block anesthesia, the fourth factor in minimizing the mortality rate, unquestionably plays an important rôle. This opinion is justified because there have been no anesthesia deaths in the series, and no alarming anesthesia reactions. The outstanding feature is that these patients return to their beds in the same condition, with respect to circulation and general appearance, as before the operation. Whatever postoperative "shock" may be, this condition is conspicuously absent following the perineal operation, under sacral anesthesia.

SUMMARY

1. The more or less general impression that sacral block anesthesia (in prostatectomy) is not wholly reliable and dependable, and that there is a certain small but inevitable percentage of failure, is erroneous. This mistaken idea may be explained in part by a confusion between the simple caudal injection and the complete sacral block, and, in part, by inaccuracy in technic, without recourse to theories with respect to anatomic and physiologic variation.

2. Sacral block anesthesia, accurately administered and with the needles unquestionably in the foramina, is uniformly and invariably dependable for perineal prostatectomy. This statement is based on the fact that it has been possible to run an as yet uninterrupted series of 229 consecutive cases of perineal prostatectomy, without the necessity for additional anesthesia in a single instance, and without drug narcosis other than one-fourth grain of morphine.

3. The sacral block method is applicable in all cases of prostatectomy. It has not been necessary to exclude a single case on account of fear or nervousness or mental excitability on the part of the patient.

4. Sacral block anesthesia carries with it no hazard which is inherent in the anesthesia itself, provided the most elementary form of caution (aspiration before injection) be employed, in avoiding puncture of the dural sac or blood vessels.

5. The average time necessary for injecting the caudal canal and the three sacral foramina on each side (seven in all) is twelve and a half minutes.

6. The method of anesthesia which may be made invariably dependable, which has no inherent anesthesia hazard and no complications or sequelae, which is simple in its technical application and is not time consuming should be the method of choice.

7. Sacral block anesthesia has been a material factor in maintaining a mortality rate as low as 2.38 per cent (nine deaths) in a consecutive series including 378 cases of perineal prostatectomy.

CONCLUSION

Sacral block anesthesia is the ideal method of anesthesia for perineal prostatectomy.

Medical Arts Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LOWSLEY AND KIRWIN, T. M. DAVIS, PEACOCK, AND EDWIN DAVIS

Dr. Alexander Randall, Philadelphia: Concerning the history of instrumental prostatectomy, starting with Young's punch, one finds that Young conceived the instrument to remove bars and small obstructive lobules. Stepping from that into the treatment by electrical cauteries, and taking Collings' instrument as an example of this, he devised his instrument for the excision, or even the incision, of obstructions at the vesical neck. It is on record that both these men have decided to limit their instruments' use to median bars, to small localized hypertrophies, to the relief of cicatrices, and to handling, in a palliative way, malignant tumors. I am convinced that no instrument now in use or yet to be devised will ever perform a complete prostatic adenectomy, as is accomplished by open operation today. As against this is the possibility that partial removal will give clinical results to which may rightly be applied the word cure. My only criticism of Dr. Davis's method is the question of its stability and the possibility that partial removal and temporary results, with the likelihood of gradually recurring obstructions, will lure one into a false security. I fear he will have a recurring morbidity and that the operation will have to be repeated. That is not really a criticism, for such a method could be repeated with safety to the patient. Therefore, though I think his method is a stimulating advance, I wish to leave it with these warnings: It is a highly technical procedure; it cannot remove all the hypertrophied prostate; and I imagine that, in the hands of the majority of the men who purchase an instrument expecting success, it will meet with failure. Dr. Peacock's paper is an interesting exposition of a hoped for technical advance. It has long been an axiom that the more one pretties up a prostatectomy, the higher one shoves up the mortality. One must realize that it is not the existence of hypertrophic prostatic tissue in the body that is the trouble, but the effect it produces by urinary obstruction. Therefore one cannot conclude that with the removal of the prostate one has removed the patient's clinical trouble. There follows after the removal

the delicate readjustment of the effects of that obstruction, which have to be most carefully dealt with. If any one thing has brought prostatectomy to its present success, it has been the understanding of preoperative drainage. If anything will carry it further, I think that the greatest factor will be competent postoperative drainage, and for that reason I fear his procedure.

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[19] Davis, Edwin: Distensible Bag for Hemostasis and Drainage Following Perineal Prostatectomy, J. Urol. 18:201 (Aug.) 1927.

Dr. R. M. Nesbit, Ann Arbor, Mich.: Two and a half years ago, in working with Dr. Hugh Cabot, I went over the records of 450 patients who had been operated on for prostatic obstruction, with drainage, and found that 17 per cent had epididymitis. At that time my associates and I started performing vasectomy on all patients as a preoperative measure and since then these patients, over 100, have shown an incidence of less than 1 per cent of epididymitis. In the one instance that has occurred there were chills and fever following operation and immediately preceding the epididymitis, and it was felt that probably the infection was blood borne.

Dr. Hermon C. Bumpus, Jr., Rochester, Minn.: I shall discuss the paper of Dr. T. M. Davis because I just visited his clinic and saw him operate on four patients, and a number who had been operated on previously were kind enough to demonstrate themselves. Dr. Davis has in no way exaggerated his results or the ease of the procedure. When, in the eighteen eighties, surgery of the prostate was first attempted, partial prostatectomy was the rule. It soon became apparent that, as then practiced through a suprapubic incision, partial removal did not completely relieve obstruction. Therefore, complete removal of the gland was undertaken and success followed, for it is axiomatic that when residual urine is completely removed results are good. The modern punch operation, as practiced by Dr. Davis, by removing all obstruction does completely relieve residual urine and hence is likewise successful. If obstruction is relieved, all indications for removing the gland in toto disappear. An elderly man will never acquiesce to the loss of his prostate when he learns that his neighbor has been relieved of all symptoms of obstruction by this simple procedure.

Dr. O. S. Lowsley, New York: I have been using regional anesthesia since 1921, and good anesthesia is always obtainable if the anesthetist gives a sufficient amount of the agent used. It has been worked out that procaine hydrochloride is destroyed in the liver, and one can use a large amount without any danger if it is given slowly. I consider the method an excellent one. With regard to Dr. T. M. Davis's paper I wish to register a protest against the use of this instrument by every one. A protest also is in order against his using it in every case. The laryngologists have given up using the same type of operation for tonsils. Why? Because they have had to go back when they have taken out only a portion and take out the whole tonsil later. That is why Dr. Davis and others will have to give up this instrument. It cannot take out the whole prostate. One subjects old men to procedure that is a great strain for two or three hours and they go home. They would probably rest at home as well as in a hospital in the average case, but I think that there will be a group of recurrences on this that will make them give it up, as Dr. Max Stern, who devised this instrument that Dr. Davis uses, did in adenomatous hypertrophy of the prostate. I wish to commend my New York confrères who take a more conservative view. Dr. Kirwin, Dr. Collings and Dr. Stern are all convinced that this type of prostate should not be operated on in the manner described by Dr. Davis. In connection with my demonstration of a method of operative intervention in suprapubic prostatectomy, I attempted to demonstrate that the intra-urethral method of removing the prostate is to be avoided, owing to the danger of tearing into the plexus of Santorini. In conclusion, I again object to patchwork at the vesical orifice. Whether the sphincter is destroyed or not, the vesical orifice will resume its function. If sutures are put in, they cause scar tissue and delay the resumption of function of the internal vesical sphincter.

Dr. J. H. Morrissey, New York: This past week, I had an opportunity of seeing the work and immediate results obtained by Dr. Davis. The general condition of some eight patients, based on the criteria by which one judges these patients, was certainly an improvement on the results which I know I should have had in the same interval. My main objection to any punch procedure in the past has been based on the assumption that the element of drainage to combat existing or postoperative infection is disregarded. I can now see that this fear is groundless, as the procedure itself provides better drainage than the patient has had previously, and in the presence of developing infection it also looks after this complication satisfactorily. I think that there are limitations to Dr. Davis's method. The loops are weak; the electrical knowledge and the patience required are something that the average genito-urinary surgeon does not possess. The fact that Dr. Davis had four instruments on the table indicates to my mind that they must break, and he was prepared for such an emergency. Of course, the perfect radio knife is that which cuts and cauterizes, checking bleeding points at the same time. That will come eventually. We have all seen a great advance and development in the various trends in electrical instruments used in urology. We must be careful not to disregard or belittle the work of a new, honest and earnest investigator who is trying to give a choice in the method of removal of obstructive prostates, a choice as to whether the prostate shall be resected, as he calls it, punched out, removed or, as happens in too many cases, yanked out in two or three seconds.

Dr. A. J. Crowell, Charlotte, N. C.: Every one realizes that progress is being made in the handling of prostatic patients. The day is not far distant when prostatectomies will largely be a thing of the past. I have been as skeptical of prostatic resection as any one, but I now know that there are great possibilities in this procedure. This operation has a definite field in prostatic surgery. It is not suitable for every case, but it is applicable in at least 90 per cent of the cases requiring surgery. Since Dr. Davis came with us January 1 of this year, my associates and I have done only four prostatectomies in operating on sixty-two patients. I wish to show a cystogram of a large median lobe prostate which Dr. Davis operated on, last Tuesday, with the tissue removed (24.6 Gm.), to demonstrate the amount of tissue that can be removed by this method when the hemorrhage is controlled. Undoubtedly, a new era in the management of prostatic patients is opening. The resection instruments at present are imperfect, but possibilities have been demonstrated by them and they will rapidly be improved so that any skilled urologist can do this work successfully.

Dr. Albert E. Goldstein, Baltimore: In discussion of the paper of Dr. T. M. Davis, several things should be stressed. The first is something that Dr. Morrissey mentioned, that one patient walked into the clinic that morning and was operated on. To me that was a dangerous procedure. The one thing I try to do is to accomplish preliminary drainage. Operating on patients immediately on their coming to the clinic will get one into trouble. For years preliminary drainage has been practiced, and one should be cautious in carrying this out. If one is perfectly satisfied to repeat this operation, it is probably all right to go ahead. One must consider what the condition is. It is probably an adenoma to begin with, and it will recur if one removes only one section at a time. Furthermore, this method will be used by those who cannot possibly perform a prostatectomy on patients, so they will resort to the Davis apparatus and again there will be trouble. In discussing Dr. Peacock's paper, I wish to stress that the one thing that has put urology on its present sound basis is the free drainage that has been used in all cases. I think one should use drainage irrespective of what type of operation one is going to perform. If one feels that the bladder should be closed, there is one method Dr. Peacock did not mention. No one mentioned closure in the perineal prostatectomy. I have removed the prostate and, while I did not close the urethra with the capsule, I closed the wound and packed the capsule for hemostatic purposes. It seems to me that if the wound is going to break down, which it will and did in 26 per cent of my cases, one is less apt to have trouble if there is room for drainage or if there is trouble in the way of hemorrhage.

Dr. George R. Livermore, Memphis, Tenn.: I have always maintained that the punch operation is indicated only in patients with obstruction of the median bar. In patients who have a hypertrophic prostate and whose condition will not permit, or who will not submit to operation, I have been endeavoring to reduce the obstruction by means of Collings' electrotome, and have had some success. I feel that this pro-

cedure of Dr. Davis is worthy of consideration. In regard to reaction, all urologists know that any patient in whom a catheter or sound is passed is likely to have a rigor and high fever. How Dr. Davis can use a metal instrument and burn out pieces of the prostate and not get any reaction is beyond my comprehension. In all urethral and bladder instrumentation, I give from 7½ to 10 grains (0.5 to 0.65 Gm.) of methenamine four times a day, and in addition often give 31 grains (2 Gm.) intravenously. This procedure has markedly reduced reactions and in some cases eliminated them entirely.

DR. A. I. FOLSOM, Dallas, Texas: Dr. Randall did not go far enough back into history to include it all. Bottini was the first man who ever advocated this procedure; Georges Luys came after him, and then came Young with his cold punch, but I think one of the most important contributions for the relief of this condition is generally overlooked, and that is the work of John Caulk of St. Louis, who instituted the method now being perfected. He has been saying for ten years that there were things about prostatectomy that we urologists did not understand. He has told us that after removing even a small section of the gland there is relief, so far as passage of urine is concerned. I think the future of urology will place John Caulk's work at the watershed among the procedures furnishing relief for these patients. I do not believe that Caulk's punch is the final answer to the problem. The next step was Collings' electrotome, and then came McCarthy with his loop. I have been using that; it is simply a quick means of doing what Dr. Davis is doing, and I have been increasingly surprised to find the extent to which I can go. I am operating on patients today whom a year and a half ago I should not have considered operable at all. Dr. Davis makes a mistake in attempting to make this a simple solution of all prostatic cases. He is wrong in this; I do not care what method is used. The fundamental purpose is preliminary drainage. He is emphasizing the wrong thing. These patients should be handled just as carefully, with preliminary preparation and care and with after-care, as those in whom the prostate is removed. I wish to cite the case of a patient with a large adenoma which I should not have considered removing at all in this way two years ago. However, the old gentleman had an almost complete heart block, and the internist to whom I referred him said that it would be impossible to remove the prostate safely. I explained this to the patient but he was so very uncomfortable that he wished us to do anything we could. I used this type of procedure, and it is now eight weeks since the operation. The bladder is normal and the residual urine is 1 ounce. He gets up only twice at night and is well. There is much to be learned about this operation. We must take it up carefully and seriously, but I think we are standing at a most interesting place in prostatic surgery.

DR. GIDEON TIMBERLAKE, St. Petersburg, Fla.: I saw Dr. Davis at work, and was surprised that he did the operation with only one assistant. If his method does give drainage we are coming to it certainly.

DR. LEO L. MICHEL, New York: The trouble with the Stern resectoscope lies in the inconstant radio current. The same voltage at different times gave different degrees of heat to the operating loop. It required a certain constant heat degree to control hemorrhage, and, because of this imperfection, hemorrhage was a frequent complication. Stern used this procedure in middle lobe intrusion, malignant intrusion and fibrotic bladder necks. Later, Dr. Stern gave up this operation in middle lobes. There was too much danger from hemorrhage, but when the current worked well his results were fine. Dr. Davis and R. Wappler have perfected the radio current. The present current permits a constant measured heat degree, thereby completely controlling hemorrhage. The operating loops of Davis are larger than Stern's, enabling one to remove larger pieces of tissue in a shorter time, and I believe with Dr. Davis that he can successfully attack almost any type of prostatic overgrowth with the present apparatus. With the radio current perfected, the results depend on the experience and skill of the operator in the manipulation of his instrument.

DR. W. S. PUGH, New York: When Dr. Stern and Dr. Collings first brought out their resectoscopes, they were a failure in true hypertrophy. The patients had recurrences, some in six months, some in a year, and were worse off than before. Regardless of what instrument is used, there will be hemorrhage in some instances. I have had two very severe cases, one with almost complete exsanguination, after using Collings' instrument. That occurred within twenty-four hours and in a second case there was severe hemorrhage after eight days. One should adopt a very liberal ground in prostatectomy. It is silly to say that one should use any single method in every case. There is a place for all methods.

DR. EDWIN DAVIS, Omaha: There seems to be no doubt that the contribution of Dr. T. M. Davis overshadows all else that has been heard this morning. This carries with it all the conviction that he has given us something of value. Time will tell the value of prostatic enucleation versus prostatic resection, and in the last analysis we may arrive at the solution of the problem.

DR. T. M. DAVIS, Greenville, S. C.: Dr. Randall spoke of recurrences. In sixteen of the cases reported, a prostatectomy had been done previously and there had been recurrences. The number that have recurrences following prostatectomy is not accurately known. I shall probably have some recurrences in this series of cases. As to purchasing an instrument and performing the operation without experience, every one who buys other instruments cannot use them skilfully without experience. I do not operate on every patient. In patients with extremely large bilateral lobes in which it is impossible to observe the posterior border with the cystoscope, I do not attempt to operate. As to Dr. Stern giving up the use of his instrument, I do not know about that. He deserves great credit for its invention. The Wright brothers invented the first airplane and their first flights were only a few hundred feet. They were by no means the man that flew an airplane from New York to Paris. All patients receive appropriate preliminary treatment. Some men come in with a small median bar, who show normal conditions on chemical analysis of the blood and a very small amount of residual urine, and there is no reason why they cannot be operated on without delay. One can do a decompression afterward if one wishes. There is no interference with the urinary output and one gives proper preliminary treatment before operation. As to why the patients do not have a reaction, I do not know but apparently they do not. Whether there is anything in connection with the current is a question. Whether that prevents a reaction I do not know, but the patients are very comfortable after this procedure and only 7 patients out of 246 have had to have a hypodermic after operation for relief from pain. Morphine is ordered if required, in every instance, but only seven patients have complained at all. If they have any discomfort to amount to anything it is usually in the third week, when the epithelium begins to grow back, and this is easily relieved by tincture of belladonna. This treatment has some action on the tissue that we do not know about. Many carcinomas are arrested; I do not know why. They do not seem to metastasize as rapidly after this treatment, and the gland does shrink. Another thing is that if one institutes adequate drainage one can see the prostate secretion pour out during sectioning and it is more than just a removal of that much tissue.

DR. T. J. KIRWIN, New York: There is a middle case. To take out enlarged prostates when one cannot get the cystoscopes over the top of them is something I do not think Dr. Davis would attempt, and neither should I.

DR. A. H. PEACOCK, Seattle: This argument about the construction of the internal urethral orifice is not only one of surgical instruments and pathology, but a matter of skill and workmanship of the individual. No rule can be laid down for any one operation. I think many of us feel that if we have no particular skill in using some of these special instruments it is safer for us to visualize the orifice suprapubically in those cases in which it is possible. In reply to Dr. Randall's criticism relative to closing the bladder, I wish to state that we do get perfect drainage with a large catheter and many of the objections are fancied and not real. I urge you to try closing cystotomies and am sure if you do, you will be satisfied with your results.

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Dr. R. M. Nesbit, Ann Arbor, Mich.: Two and a half years ago, in working with Dr. Hugh Cabot, I went over the records of 450 patients who had been operated on for prostatic obstruction, with drainage, and found that 17 per cent had epididymitis. At that time my associates and I started performing vasectomy on all patients as a preoperative measure and since then these patients, over 100, have shown an incidence of less than 1 per cent of epididymitis. In the one instance that has occurred there were chills and fever following operation and immediately preceding the epididymitis, and it was felt that probably the infection was blood borne.

Dr. Hermon C. Bumpus, Jr., Rochester, Minn.: I shall discuss the paper of Dr. T. M. Davis because I just visited his clinic and saw him operate on four patients, and a number who had been operated on previously were kind enough to demonstrate themselves. Dr. Davis has in no way exaggerated his results or the ease of the procedure. When, in the eighteen eighties, surgery of the prostate was first attempted, partial prostatectomy was the rule. It soon became apparent that, as then practiced through a suprapubic incision, partial removal did not completely relieve obstruction. Therefore, complete removal of the gland was undertaken and success followed, for it is axiomatic that when residual urine is completely removed results are good. The modern punch operation, as practiced by Dr. Davis, by removing all obstruction does completely relieve residual urine and hence is likewise successful. If obstruction is relieved, all indications for removing the gland in toto disappear. An elderly man will never acquiesce to the loss of his prostate when he learns that his neighbor has been relieved of all symptoms of obstruction by this simple procedure.

Dr. O. S. Lowsley, New York: I have been using regional anesthesia since 1921, and good anesthesia is always obtainable if the anesthetist gives a sufficient amount of the agent used. It has been worked out that procaine hydrochloride is destroyed in the liver, and one can use a large amount without any danger if it is given slowly. I consider the method an excellent one. With regard to Dr. T. M. Davis's paper I wish to register a protest against the use of this instrument by every one. A protest also is in order against his using it in every case. The laryngologists have given up using the same type of operation for tonsils. Why? Because they have had to go back when they have taken out only a portion and take out the whole tonsil later. That is why Dr. Davis and others will have to give up this instrument. It cannot take out the whole prostate. One subjects old men to procedure that is a great strain for two or three hours and they go home. They would probably rest at home as well as in a hospital in the average case, but I think that there will be a group of recurrences on this that will make them give it up, as Dr. Max Stern, who devised this instrument that Dr. Davis uses, did in adenomatous hypertrophy of the prostate. I wish to commend my New York confrères who take a more conservative view. Dr. Kirwin, Dr. Collings and Dr. Stern are all convinced that this type of prostate should not be operated on in the manner described by Dr. Davis. In connection with my demonstration of a method of operative intervention in suprapubic prostatectomy, I attempted to demonstrate that the intra-urethral method of removing the prostate is to be avoided, owing to the danger of tearing into the plexus of Santorini. In conclusion, I again object to patchwork at the vesical orifice. Whether the sphincter is destroyed or not, the vesical orifice will resume its function. If sutures are put in, they cause scar tissue and delay the resumption of function of the internal vesical sphincter.

Dr. J. H. Morrissey, New York: This past week, I had an opportunity of seeing the work and immediate results obtained by Dr. Davis. The general condition of some eight patients, based on the criteria by which one judges these patients, was certainly an improvement on the results which I know I should have had in the same interval. My main objection to any punch procedure in the past has been based on the assumption that the element of drainage to combat existing or postoperative infection is disregarded. I can now see that this fear is groundless, as the procedure itself provides better drainage than the patient has had previously, and in the presence of developing infection it also looks after this complication satisfactorily. I think that there are limitations to Dr. Davis's method. The loops are weak; the electrical knowledge and the patience required are something that the average genito-urinary surgeon does not possess. The fact that Dr. Davis had four instruments on the table indicates to my mind that they must break, and he was prepared for such an emergency. Of course, the perfect radio knife is that which cuts and cauterizes, checking bleeding points at the same time. That will come eventually. We have all seen a great advance and development in the various trends in electrical instruments used in urology. We must be careful not to disregard or belittle the work of a new, honest and earnest investigator who is trying to give a choice in the method of removal of obstructive prostates, a choice as to whether the prostate shall be resected, as he calls it, punched out, removed or, as happens in too many cases, yanked out in two or three seconds.

Dr. A. J. Crowell, Charlotte, N. C.: Every one realizes that progress is being made in the handling of prostatic patients. The day is not far distant when prostatectomies will largely be a thing of the past. I have been as skeptical of prostatic resection as any one, but I now know that there are great possibilities in this procedure. This operation has a definite field in prostatic surgery. It is not suitable for every case, but it is applicable in at least 90 per cent of the cases requiring surgery. Since Dr. Davis came with us January 1 of this year, my associates and I have done only four prostatectomies in operating on sixty-two patients. I wish to show a cystogram of a large median lobe prostate which Dr. Davis operated on, last Tuesday, with the tissue removed (24.6 Gm.), to demonstrate the amount of tissue that can be removed by this method when the hemorrhage is controlled. Undoubtedly, a new era in the management of prostatic patients is opening. The resection instruments at present are imperfect, but possibilities have been demonstrated by them and they will rapidly be improved so that any skilled urologist can do this work successfully.

Dr. Albert E. Goldstein, Baltimore: In discussion of the paper of Dr. T. M. Davis, several things should be stressed. The first is something that Dr. Morrissey mentioned, that one patient walked into the clinic that morning and was operated on. To me that was a dangerous procedure. The one thing I try to do is to accomplish preliminary drainage. Operating on patients immediately on their coming to the clinic will get one into trouble. For years preliminary drainage has been practiced, and one should be cautious in carrying this out. If one is perfectly satisfied to repeat this operation, it is probably all right to go ahead. One must consider what the condition is. It is probably an adenoma to begin with, and it will recur if one removes only one section at a time. Furthermore, this method will be used by those who cannot possibly perform a prostatectomy on patients, so they will resort to the Davis apparatus and again there will be trouble. In discussing Dr. Peacock's paper, I wish to stress that the one thing that has put urology on its present sound basis is the free drainage that has been used in all cases. I think one should use drainage irrespective of what type of operation one is going to perform. If one feels that the bladder should be closed, there is one method Dr. Peacock did not mention. No one mentioned closure in the perineal prostatectomy. I have removed the prostate and, while I did not close the urethra with the capsule, I closed the wound and packed the capsule for hemostatic purposes. It seems to me that if the wound is going to break down, which it will and did in 26 per cent of my cases, one is less apt to have trouble if there is room for drainage or if there is trouble in the way of hemorrhage.

Dr. George R. Livermore, Memphis, Tenn.: I have always maintained that the punch operation is indicated only in patients with obstruction of the median bar. In patients who have a hypertrophic prostate and whose condition will not permit, or who will not submit to operation, I have been endeavoring to reduce the obstruction by means of Collings' electrotome, and have had some success. I feel that this pro-

cedure of Dr. Davis is worthy of consideration. In regard to reaction, all urologists know that any patient in whom a catheter or sound is passed is likely to have a rigor and high fever. How Dr. Davis can use a metal instrument and burn out pieces of the prostate and not get any reaction is beyond my comprehension. In all urethral and bladder instrumentation, I give from 7½ to 10 grains (0.5 to 0.65 Gm.) of methenamine four times a day, and in addition often give 31 grains (2 Gm.) intravenously. This procedure has markedly reduced reactions and in some cases eliminated them entirely.

Dr. A. I. Folsom, Dallas, Texas: Dr. Randall did not go far enough back into history to include it all. Bottini was the first man who ever advocated this procedure; Georges Luys came after him, and then came Young with his cold punch, but I think one of the most important contributions for the relief of this condition is generally overlooked, and that is the work of John Caulk of St. Louis, who instituted the method now being perfected. He has been saying for ten years that there were things about prostatectomy that we urologists did not understand. He has told us that after removing even a small section of the gland there is relief, so far as passage of urine is concerned. I think the future of urology will place John Caulk's work at the watershed among the procedures furnishing relief for these patients. I do not believe that Caulk's punch is the final answer to the problem. The next step was Collings' electrotome, and then came McCarthy with his loop. I have been using that; it is simply a quick means of doing what Dr. Davis is doing, and I have been increasingly surprised to find the extent to which I can go. I am operating on patients today whom a year and a half ago I should not have considered operable at all. Dr. Davis makes a mistake in attempting to make this a simple solution of all prostatic cases. He is wrong in this; I do not care what method is used. The fundamental purpose is preliminary drainage. He is emphasizing the wrong thing. These patients should be handled just as carefully, with preliminary preparation and care and with after-care, as those in whom the prostate is removed. I wish to cite the case of a patient with a large adenoma which I should not have considered removing at all in this way two years ago. However, the old gentleman had an almost complete heart block, and the internist to whom I referred him said that it would be impossible to remove the prostate safely. I explained this to the patient but he was so very uncomfortable that he wished us to do anything we could. I used this type of procedure, and it is now eight weeks since the operation. The bladder is normal and the residual urine is 1 ounce. He gets up only twice at night and is well. There is much to be learned about this operation. We must take it up carefully and seriously, but I think we are standing at a most interesting place in prostatic surgery.

Dr. Gideon Timberlake, St. Petersburg, Fla.: I saw Dr. Davis at work, and was surprised that he did the operation with only one assistant. If his method does give drainage we are coming to it certainly.

Dr. Leo L. Michel, New York: The trouble with the Stern resectoscope lies in the inconstant radio current. The same voltage at different times gave different degrees of heat to the operating loop. It required a certain constant heat degree to control hemorrhage, and, because of this imperfection, hemorrhage was a frequent complication. Stern used this procedure in middle lobe intrusion, malignant intrusion and fibrotic bladder necks. Later, Dr. Stern gave up this operation in middle lobes. There was too much danger from hemorrhage, but when the current worked well his results were fine. Dr. Davis and R. Wappler have perfected the radio current. The present current permits a constant measured heat degree, thereby completely controlling hemorrhage. The operating loops of Davis are larger than Stern's, enabling one to remove larger pieces of tissue in a shorter time, and I believe with Dr. Davis that he can successfully attack almost any type of prostatic overgrowth with the present apparatus. With the radio current perfected, the results depend on the experience and skill of the operator in the manipulation of his instrument.

Dr. W. S. Pugh, New York: When Dr. Stern and Dr. Collings first brought out their resectoscopes, they were a failure in true hypertrophy. The patients had recurrences, some in six months, some in a year, and were worse off than before. Regardless of what instrument is used, there will be hemorrhage in some instances. I have had two very severe cases, one with almost complete exsanguination, after using Collings' instrument. That occurred within twenty-four hours and in a second case there was severe hemorrhage after eight days. One should adopt a very liberal ground in prostatectomy. It is silly to say that one should use any single method in every case. There is a place for all methods.

Dr. Edwin Davis, Omaha: There seems to be no doubt that the contribution of Dr. T. M. Davis overshadows all else that has been heard this morning. This carries with it all the conviction that he has given us something of value. Time will tell the value of prostatic enucleation versus prostatic resection, and in the last analysis we may arrive at the solution of the problem.

Dr. T. M. Davis, Greenville, S. C.: Dr. Randall spoke of recurrences. In sixteen of the cases reported, a prostatectomy had been done previously and there had been recurrences. The number that have recurrences following prostatectomy is not accurately known. I shall probably have some recurrences in this series of cases. As to purchasing an instrument and performing the operation without experience, every one who buys other instruments cannot use them skilfully without experience. I do not operate on every patient. In patients with extremely large bilateral lobes in which it is impossible to observe the posterior border with the cystoscope, I do not attempt to operate. As to Dr. Stern giving up the use of his instrument, I do not know about that. He deserves great credit for its invention. The Wright brothers invented the first airplane and their first flights were only a few hundred feet. They were by no means the man that flew an airplane from New York to Paris. All patients receive appropriate preliminary treatment. Some men come in with a small median bar, who show normal conditions on chemical analysis of the blood and a very small amount of residual urine, and there is no reason why they cannot be operated on without delay. One can do a decompression afterward if one wishes. There is no interference with the urinary output and one gives proper preliminary treatment before operation. As to why the patients do not have a reaction, I do not know but apparently they do not. Whether there is anything in connection with the current is a question. Whether that prevents a reaction I do not know, but the patients are very comfortable after this procedure and only 7 patients out of 246 have had to have a hypodermic after operation for relief from pain. Morphine is ordered if required, in every instance, but only seven patients have complained at all. If they have any discomfort to amount to anything it is usually in the third week, when the epithelium begins to grow back, and this is easily relieved by tincture of belladonna. This treatment has some action on the tissue that we do not know about. Many carcinomas are arrested; I do not know why. They do not seem to metastasize as rapidly after this treatment, and the gland does shrink. Another thing is that if one institutes adequate drainage one can see the prostate secretion pour out during sectioning and it is more than just a removal of that much tissue.

Dr. T. J. Kirwin, New York: There is a middle case. To take out enlarged prostates when one cannot get the cystoscopes over the top of them is something I do not think Dr. Davis would attempt, and neither should I.

Dr. A. H. Peacock, Seattle: This argument about the construction of the internal urethral orifice is not only one of surgical instruments and pathology, but a matter of skill and workmanship of the individual. No rule can be laid down for any one operation. I think many of us feel that if we have no particular skill in using some of these special instruments it is safer for us to visualize the orifice suprapubically in those cases in which it is possible. In reply to Dr. Randall's criticism relative to closing the bladder, I wish to state that we do get perfect drainage with a large catheter and many of the objections are fancied and not real. I urge you to try closing cystotomies and am sure if you do, you will be satisfied with your results.

ACCESSORY SINUS INFECTION IN SUSPECTED PULMONARY TUBERCULOSIS *

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In making roentgenologic examinations of many chests, one finds evidence of chronic infection that is nontuberculous in origin. Most of the patients who are referred for roentgen examination of the lungs are sent for one purpose; namely, to determine whether or not pulmonary tuberculosis is present and to what extent. Formerly, the roentgenologist was content with his diagnosis when he could rule out a pulmonary tuberculous infection. Now, in order to be of greater service to the referring physician and to the patient, he must try to find the origin of the chronic infection that is causing the lung symptoms. The lung changes may represent chronic bronchitis, bronchial asthma, or bronchiectasis. The origin may be in the upper respiratory tract, especially the accessory sinuses.

During the past four years my associate Dr. James H. West and I have been impressed by the number of chest patients whose clinical symptoms suggested early tuberculosis but whose chest roentgenograms revealed increased connective tissue branching out from each hilus region with no parenchymal involvement. The linear markings were broad and short and there was thickening of the bronchi at the bases. Most of the patients were adults. Out of 1,377 chest patients examined, one or more roentgenograms of the sinuses were made in 124 cases. Of these, seventy-six had definite sinus complications. Seventeen had signs of tuberculosis and sinusitis. All the sinus examinations were made on our own responsibility; only recently are requests being made to examine the sinuses in addition to the stereoscopic chest studies. In addition to this list of chest cases, about an equal number of similar patients were examined at St. Vincent's Charity Hospital. At first, no sinus examination was made until after the chest roentgenograms were studied. If the patient looked well nourished and had a chronic cough, we made a single roentgenogram of the sinuses in the Waters position; later it became our custom to take a short history at the time of the fluoroscopic examination. If the patient gave a history of frequent head colds and increased expectoration, a sinus examination was clearly indicated. The number of chest patients for whom we made one or more sinus roentgenograms steadily increased each year during the series from 1927 to 1930 inclusive. In 1927 we selected only nine patients; in 1930 there were fifty-four. Stereoscopic chest studies were made in all cases. A surprising number of sinus complications were found. A sinus examination was not made in any case giving gross fluoroscopic evidence of tuberculosis.

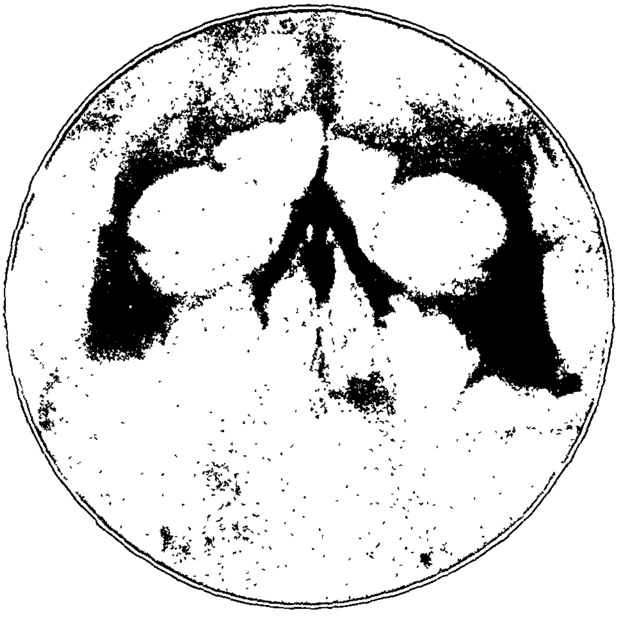

Fig. 1 (case 3).—Active sinusitis with pus in each antrum, more in the right than in the left.

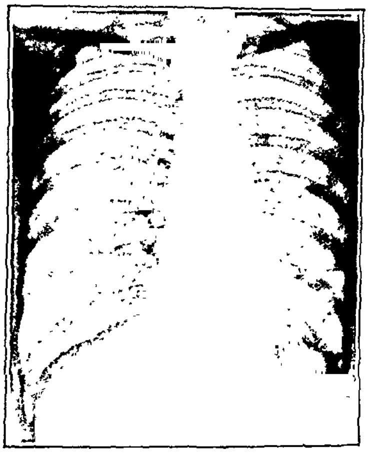

Fig. 2 (case 3).—Lung changes of nontuberculous origin. Patient's symptoms disappeared with treatment of her sinusitis. The case had been diagnosed clinically as an active pulmonary tuberculosis.

Fluoroscopic examination alone, without stereoscopic roentgenograms, is not reliable for detection of early pulmonary tuberculosis. The early lung changes are not visible on the fluoroscopic screen and much valuable time may be lost in beginning the proper treatment of early tuberculosis.

Since this paper was begun, four months ago, four helpful references have been found in the literature regarding the relation of sinus infection to respiratory disease. Knight,[1] Schwartz[2] and Mullin[3] referred mostly to the adult, and Wasson[4] has written several excellent articles regarding the infant chest and the development of bronchosinusitis in children, and they all clearly show that one may expect to find lung changes in the adult which had their origin years before in sinus infection and reinfection, or some other infection of the upper respiratory tract.

A patient may be unaware of the presence of a sinusitis. Pain is not necessarily a symptom. The only subjective symptom may be a moderate postnasal dropping of mucus and a tinge of yellow in the nasal secretions. When such symptoms obtain for more than a month, a sinus examination will reveal chronic sinusitis in a high percentage of cases.

I shall consider briefly the anatomy of the lung and the use of a few terms. The use of the word hilus as used in this paper refers to the fan-shaped area including the root of the lung and extending peripherally about an inch beyond the bifurcation of the bronchi. The lymph nodes that most frequently concern the roentgenologist are the bronchopulmonary glands

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* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Knight, R. W.: The Relation of Sinus Infections to Respiratory Disease, Canad. M. A. J. **18**: 54 (Jan.) 1928.

[2] Schwartz, Morris: Sinusitis in Relation to Acute Bronchitis, M. J. & Rec. **131**: 310 (March 19) 1930.

[3] Mullin, W. V.: Relation of Paranasal Sinus Infection to Disease of Lower Respiratory Tract, J. A. M. A. **87**: 739 (Sept. 4) 1926.

[4] Wasson, W. W.: Bronchosinusitis Disease and Incipient Pulmonary Tuberculosis, Illinois M. J. **58**: 62 (July) 1930.

located at the bifurcation of the bronchi. When these glands enlarge or change in appearance, they are more easily detected than the more centrally placed bronchial or mediastinal glands, because they are nearly surrounded by air. The linear markings that extend outward from each hilus are made up of artery and bronchus bound together by connective tissue. The vein that accompanies the artery and bronchus plays little part in differential roentgen diagnosis, and the distribution of the nerve branches does not show on the roentgenogram. Changes in these linear markings are sometimes called bronchial thickening or increased fibrosis, but in chronic infection it is due mostly to increase in connective tissue. The older the patient the more connective tissue, and the older the patient the more chronic the infection. When this broad but short increase in the linear markings is general at each hilus, it is typical of nontuberculous infection. A typical tuberculous infection shows an area of mottling somewhere in the parenchyma and enlarged lymph glands at the hilus draining this area. Some fibrosis can usually be found between the distal focus and the enlarged glands.

The rhinologists have received much assistance in the diagnosis of sinus disease since the roentgenologists have been making sinus examinations before and after the injection of iodized oil. Such roentgenograms detect thickening of the membrane lining the sinuses and indicate the degree of thickness of the hyperplastic tissue. Moreover, certain indentations and irregularities indicate the presence of polyps. Collections of pus in walled off areas of hyperplastic tissue in an antrum will probably never disappear until a radical operation removes the chronic infected tissue from the sinus. It is difficult to think of prolonged nasal disease and some cases of asthma without associated sinus infection. Polyps in the nose or antrum mean chronic infection and will eventually give rise to lung changes and chest symptoms.

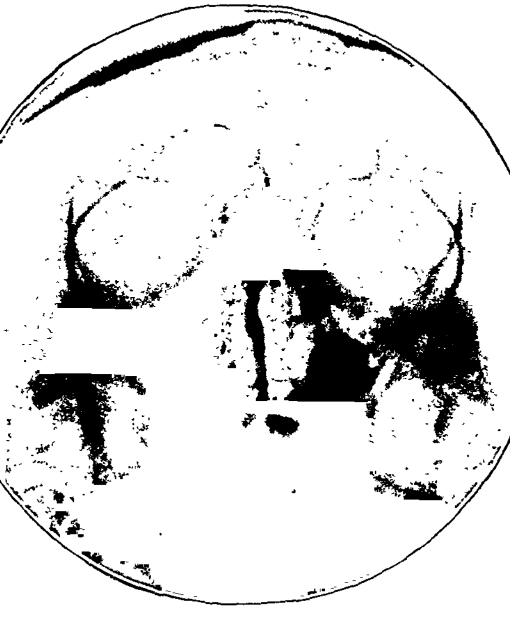

Fig. 3 (case 4).—Injection of iodized oil in each antrum showed thickened membrane of a chronic sinusitis. Symptoms disappeared after bilateral Caldwell-Luc operation.

Mullin and Ryder have shown experimentally that the lymph channels drain the antrums and frontal sinuses into the bronchial and mediastinal glands by way of the submaxillary, internal jugular and carotid route, and Mullin[3] has further stated that protracted flooding of the lymph channels with infectious material from the hyperplastic maxillary sinus tends to produce a chronic peribronchitis and, if neglected, a bronchiectasis will follow. However, in my opinion, the more usual route of bronchial infection is a spreading downward of the infectious material through the trachea and the bronchial branches.

Every rhinologist knows that influenza causes many cases of sinusitis and that acute infectious diseases such as measles and whooping cough may cause a sinusitis.

Every roentgenologist, when requested to give a roentgen treatment for enlarged bronchial glands following whooping cough, should include a roentgenographic study of the sinuses when he makes his stereoscopic chest studies preliminary to treatment.

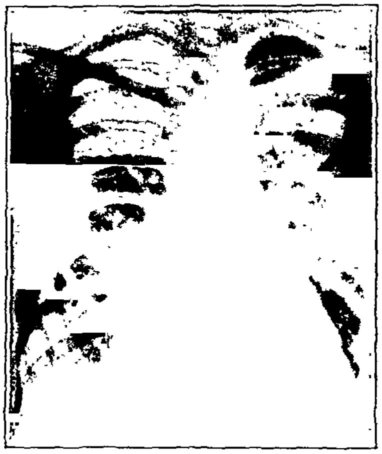

Fig. 4 (case 4).—Nontuberculous infection with bronchiectasis, relieved by treatment of sinusitis.

Every physician who is called on to examine clinically a chest should include acute and chronic infection of the upper respiratory tract as the possible source of the present lung symptoms. Tracheal and bronchial irritation may follow within a few hours after the onset of an acute rhinitis or pharyngitis. Stereoscopic roentgenograms will detect very early bronchopneumonia, which may develop within twenty hours in influenza. In this series, we are entirely concerned with the subacute and chronic stages of bronchial infection, which can best be described by giving a short history of a few cases and reporting the roentgen observations:

CASE 1.—In June, 1927, we examined the chest of a young woman, aged 22. The roentgenograms showed a hazy infiltration of the bronchial branches throughout both lungs, particularly in the posterior branches in the second interspace of each upper lobe. We considered it a very early tuberculous infection. No history was taken of the case. We examined the same patient two years later after taking the following history: She began to have frequent colds at the age of 10 years, and began to cough at 15. Her tonsils were removed six months later and the colds recurred. At 19, polyps were removed from the nose. Chest symptoms became worse and the cough increased. She spent three months in the Warrensville tuberculosis sanatorium in the early part of 1927. There was no history of roentgen examination of the sinuses. A year later there was much expectoration of a yellow and green mucus. The patient had a temperature of 99.6 F., a frontal headache, and deafness in the left ear. Our report was as follows: "Stereoscopic examination of the chest shows a slight thickening of the bronchial branches extending up from each hilus and evidence of bronchiectasis in each lower lobe. There is no evidence of tuberculosis. Examination of the sinuses shows a marked cloudiness of each antrum and some haziness of both frontals and the ethmoids, indicating a chronic sinusitis with pus in each antrum." Polyps were removed and an antrotomy was performed by a rhinologist, May 20, 1929; a bilateral Caldwell-Luc operation was done November 12. The patient has greatly improved.

Case 2.—In August, 1929, we made a roentgenographic study of the sinuses of a man, aged 29, who for years had had a recurring nasal discharge and chronic cough. He had the idea that he could throw it off eventually and had not sought medical aid. He gave no history of a previous pneumonia. His roentgenograms showed a general cloudiness of all the sinuses and evidence of a chronic sinusitis. Later, a chest study was made which showed a chronic bronchitis and bronchiectasis and no tuberculosis. Antrotomy was done. Lavage was done for six weeks. Sinus and chest symptoms improved.

Case 3.—Early in January, 1930, a man came for advice concerning a young woman who was a school teacher in a neighboring city and who had come to Cleveland for the Christmas vacation, was taken ill, and was at present in a small hospital. Her case had been diagnosed as pulmonary tuberculosis by two physicians in the hospital and also by a city physician. She gave a history of beginning to cough in November, and soon after reaching Cleveland had a temperature of 104 F. Three days later she had entered the hospital and two weeks later was told by her physician that she had tuberculosis. My advice to the friend was that the patient would surely receive good care in the hospital, but if anything radical was proposed, a consultation could be requested. January 25, after being told that she must spend three months in the City Hospital and then enter the tuberculosis sanatorium, she insisted on a consultation. The report of her roentgen examination is as follows: "Stereoscopic examination of the chest shows a generalized thickening of the bronchial branches in the right lung and a slight thickenig of the bronchial branches extending up from the left hilus. There is also a slight haziness along the vertebral bronchial branches extending up into the right apex. In our opinion, these lung changes are nontuberculous in origin. *Examination of the sinuses shows a marked haziness of each* antrum and a slight haziness of each frontal and all of the ethmoid cells, indicating an active sinusitis with pus in each antrum. The sphenoid is comparatively clear. In our opinion, the lung changes are due to the sinus infection." She was referred to a rhinologist, who washed out each antrum. She gained 10 pounds (4.5 Kg.) in two weeks. Examination was made February 6 with iodized oil. A Caldwell-Luc operation was performed, February 10. The patient has had three separate chest examinations by different roentgenologists in Cleveland since the antrum operation, in order to satisfy every one concerned, and to be allowed to continue teaching school. All three roentgen reports have been negative for pulmonary tuberculosis.

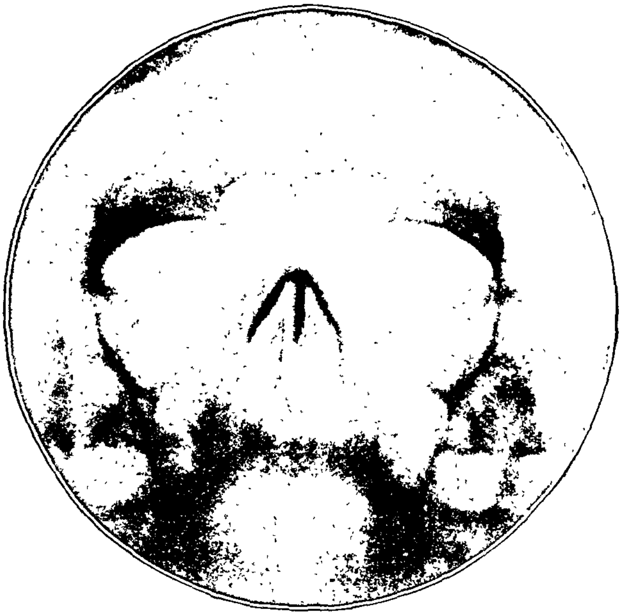

Fig. 5 (case 5).—Chronic hyperplastic thickening of membrane of each antrum with polyp formation; relieved by bilateral Caldwell-Luc operation.

Case 4.—In February, 1930, we examined the chest of a boy, aged 14, who had a chronic cough and expectorated considerably, and whose sputum had been repeatedly examined for tubercle bacilli, with negative reports. He had had repeated colds for five years. His sinuses had never been examined. There was no history of pneumonia. The report of our roentgen study was as follows: "Stereoscopic examination of the chest shows a general thickening of the descending bronchial branches in each lower lobe and a lesser thickening of the ascending bronchial branches from each hilus, indicating some nontuberculous infection and a bronchiectasis in the lower lobes. There is no evidence of tuberculosis in either lung. The heart is crowded to the left side of the median line by a depressed sternum. The apexes and costophrenic angles are clear. Roentgenograms of the sinuses show marked evidence of chronic sinusitis of each antrum with hyperplastic thickening of the membrane. There is also some haziness of the ethmoid cells. The frontal sinuses and the sphenoids are clear. In our opinion, the chronic sinusitis is the cause of the bronchitis and bronchiectasis, and in our opinion the lung condition will rapidly improve with treatment of the sinuses. . . . Injection of the right antrum with iodized oil shows a very thick and irregular membrane, indicating the presence of probable polyps in the antrum. Injection of the left antrum shows that the membrane is not quite as thick as in the right, but it is irregular also and suggests the presence of polyps." A bilateral Caldwell-Luc operation was performed February 11. The cough disappeared; the patient rapidly gained weight.

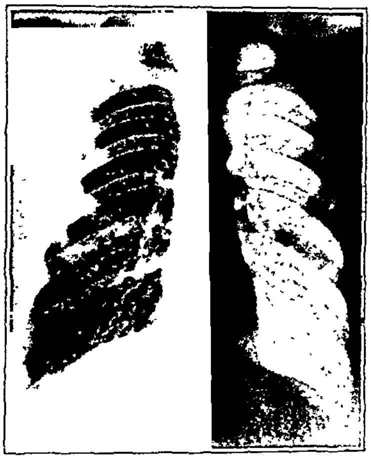

Fig. 6 (case 5).—Nontuberculous infection. Patient had been treated for more than two years in a tuberculosis sanatorium. No evidence of any pulmonary tuberculosis at this examination.

Case 5.—This report is too interesting to leave out of the series examined in the years 1926 to 1930 inclusive, although this patient was examined in March, 1931. He had recently been referred to Dr. E. P. Edwards, who could find no clinical signs of pulmonary tuberculosis. His diagnosis was an infection of the upper respiratory tract which was responsible for the chest symptoms, and he referred the patient to us for a roentgen examination of the chest and sinuses. The patient, aged 35, was discharged eleven months ago from a tuberculosis sanatorium where he had spent the greater part of two years. He has colds continually; also frequent headaches, especially above the eyes. There was much nasal discharge and expectoration. The tonsils were removed three and a half years ago. The report of the roentgenographic study is as follows: "Fluoroscopic examination of the chest shows no evidence of fluid in either costophrenic angle and there is normal excursion of the diaphragm on each side. Stereoscopic roentgenograms show a generalized fibrosis branching out from each hilus and of the ascending and descending trunk shadows in each lung. There are no parenchymal changes, and in our opinion the fibrosis is due to a chronic nontuberculous infection. Roentgen examination of the sinuses shows a marked increased density of each antrum, evidently due to thickening of the membrane from a chronic sinusitis. Injection of iodized oil in each antrum indicates polyp formation." A rhinologist then did a bilateral Caldwell-Luc operation, and polyps were found in each antrum.

These histories are typical of a sinus chest infection. The clinical symptoms may closely simulate active pulmonary tuberculosis. Râles and elevation of temperature are present. A careful history should prompt a roentgen examination of the sinuses in at least 9 per cent of chest cases examined. Fluoroscopic examination of the chest has very limited differential diagnostic value in determining early tuberculosis and no value in distinguishing early tuberculosis from chronic infection. When a known sinusitis exists, a stereoscopic chest study is indicated to determine the degree of pulmonary changes due to chronic infection. These roentgenograms have immense comparative value for later examinations.

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ABSTRACT OF DISCUSSION

Dr. Henry K. Pancoast, Philadelphia: The finding of sinus disease means, of course, that infection in the lower respiratory tract is being kept up by a constant source from above. All realize that a sinus examination is quite essential in cases in which one finds lower respiratory changes, especially in the lower lobes, in both adult life and in childhood, and even in infancy. It is quite important to go into the history of these patients to determine what the underlying cause of the condition may be besides the constant source of infection from above. The patient may have had recurring pneumonia, a severe attack of influenza, or a lung abscess. These conditions may have caused interstitial change in the lungs, as a result of which dilatation of the bronchi may have resulted, with an approach to or an actual development of bronchiectasis. Oftentimes it is necessary for the bronchoscopist to aid in making a definite diagnosis of the underlying lung condition. Pleurisy with resulting adhesions and limitation of the movement of the dome of the diaphragm on one side may make the lower lobe on that side a vulnerable spot for recurring and continued infections. The frequency with which cases such as have been shown are referred for examination by asthma clinics shows also another side to the question. No doubt many of the patients suffer from allergic reactions and that aspect of the case may be cleared up by study in an asthma clinic. On the other hand, many persons with supposed asthma are referred to roentgenologists for examination and they find sinus conditions, or obtain histories of previous conditions which could have produced interstitial changes in the lungs. They may even find pneumonoconiosis or tuberculosis.

Dr. Leon T. Le Wald, New York: Dr. Osmond has brought up two important subjects in his paper. One of them is the limitation of the fluoroscope in examination of the lungs. I think that point cannot be stressed too much; not only is it impossible to make an accurate early diagnosis of pulmonary tuberculosis, but I have seen the other mistake made of a wrong diagnosis from a fluoroscopic examination alone. There was a case in the federal courts just the other day in which the question came up whether a man had healed tuberculosis or not. A doctor went on the stand and testified that the man had a cavity and, therefore, that he had an active tuberculosis. His opinion was based on fluoroscopic examination alone. Two roentgenologists went on the stand and testified that careful stereoscopic films showed there was not a cavity and that the several healed fibrotic lesions gave a somewhat circular shadow that was definitely resolved on the stereoscopic films into overlapping shadows. In spite of that fact, owing to the sympathy of the jury, I understand this man was awarded war risk insurance for total disability amounting to $10,000 on that fluoroscopic examination, which was inaccurate. I hope the case may be appealed and that Dr. Osmond will testify to what he said here. The other point is that I don't think the roentgenologist need hesitate when a case is sent to him for diagnosis of the respiratory tract to make a roentgen examination of the sinuses when he feels it is a necessary part of the examination. If one sends a patient to an ophthalmologist for presbyopia and asks to have glasses fitted and the ophthalmologist simply prescribes glasses without looking at the retina, overlooking albuminuric retinitis or a detached retina or a hemorrhage, he would be considered negligent. I don't want to go so far as to say that the roentgenologist, if he didn't make a sinus examination and the sinus lesion existed, would be regarded as not having done his full duty. A case cited by Dr. Pancoast of a button in a child's nose is an excellent example of a dramatic incident. If that had been overlooked by the first roentgenologist and another roentgenologist had found the button, the first roentgenologist would probably be considered not to have made an adequate examination.

Dr. Kenneth Allen, Denver: It is quite possible for a child or a young adult to have nasal accessory sinus disease combined with pulmonary tuberculosis, so that if one examines the chest and suspects a chronic infection of nontuberculous type in the respiratory tract and then examines the sinuses and finds that they are diseased, one must be a little careful not to say immediately that the case is not tuberculosis. One differential point in the study of these chests, especially the early adult type of individual, is that, in the nontuberculous chest infection which accompanies nasal accessory sinus disease, the thickening of the trunk shadows has a tendency to be symmetrically distributed. Another differential point is that the nontuberculous intensification of trunk shadows is more marked near the hilus, diminishing peripherally, whereas tuberculosis is asymmetrical, the disease more often reaching the periphery and not diminishing from the hilus outward. Furthermore, the tuberculous case has a tendency to show enlarged lymph nodes near the hilus, whereas the nontuberculous infection has not. I believe one must still consider the possibility of tuberculosis, even though there is sinus disease, and these chest signs among others will help in the differentiation.

Dr. John D. Osmond, Cleveland: Physicians in general practice must gradually become accustomed to looking for complication of sinus disease such as I have described, or in the examination of all chest cases. There is a tuberculosis clinic outside of Cleveland where in twenty-five cases examined the physician found four sinus complications. It just adds evidence to what has been stated with regard to this condition.

EFFECTS OF SPINAL ANESTHETICS ON THE SPINAL CORD AND ITS MEMBRANES

AN EXPERIMENTAL STUDY *

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J. H. GIVENS, M.D.
AND
JOHN EMMETT, M.D.
CHICAGO

Based on the suggestion by Corning,[1] in 1885, that the intervertebral injection of cocaine solution would produce anesthesia sufficient for operations on the urethra and perineum, and on the perfection of the method of lumbar spinal puncture by Quincke[2] in 1891, the production of surgical anesthesia was established by the intrathecal injection of cocaine by Bier,[3] in 1899, and by Tait and Caglieri[4] in 1900. The development of stovaine by Fourneau,[5] in 1904, and of procaine (novocain) by Einhorn,[6] in 1905, not to mention the many other compounds used, and the clinical and technical methods developed by Barker,[7]

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* Read before the Chicago Surgical Society, April 3, 1931.

* From the Department of Surgery and the Laboratory of Surgical Research, Northwestern University Medical School.

[1] Corning, J. F.: Spinal Anesthesia and Local Medication of the Cord, New York M. J. **42:** 483-485, 1885.

[2] Quincke, H. I.: Die Lumbalpunction des Hydrocephalus, Berl. klin. Wchnschr. **28:** 929-965, 1891.

[3] Bier, A.: Versuche über Cocainsirung des Rückenmarkes, Deutsche Ztschr. f. Chir. **51:** 361-369, 1899.

[4] Tait, D., and Caglieri, G. E.: Experimental and Clinical Notes on the Subarachnoid Space, Tr. M. Soc. California **30:** 266-283, 1900.

[5] Fourneau, Ernest: Stovaine, anesthésique local, Bull. d. Soc. pharmacol. **10:** 141-148, 1904.

[6] Einhorn, cited by Biberfels, J.: Pharmakologisches über Novocain, Med. Klin. **1:** 1218-1219, 1905.

[7] Barker, A. E.: Clinical Experience with Spinal Analgesia in One Hundred Cases, Brit. M. J. **1:** 665-674, 1907.

Babcock,[8] Labat,[9] Pitkin[10] and others have served to establish spinal anesthesia firmly as an anesthetic agent in the armamentarium of the surgeon.

That the newer anesthetics and the methods of their administration and control have less disagreeable pharmacologic and physiologic manifestations than cocaine and its nearer relatives may be admitted. However, surprisingly little is to be found in the literature concerning the possible pathologic changes in the spinal cords of human beings or animals that have been subjected to intrathecal injections of the newer spinal anesthetics.

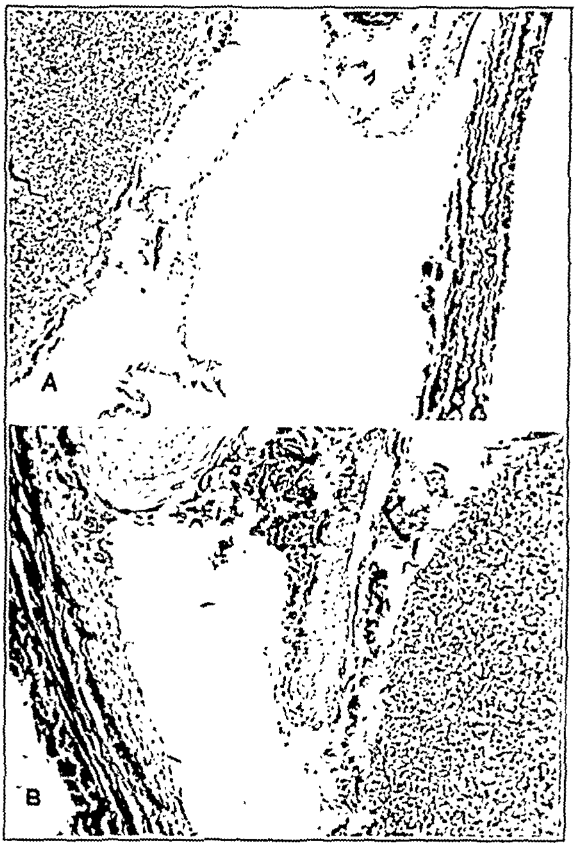

Fig. 1.—*A*, lumbar enlargement of the spinal cord of a dog seven days after injection of spinocaine into the lumbosacral dural sac; a moderate degree of inflammatory reaction is present. *B*, region of the lumbar enlargement thirty days after the injection of spinocaine showing fibrotic scarring on healing of an inflammatory reaction; van Gieson stain. Reduced from a photomicrograph with a magnification of 110 diameters.

Wossidlo[11] injected 5 per cent procaine hydrochloride into the subarachnoid space of dogs and found definite changes in the Nissl substance and the nucleus of the ganglion cells at intervals extending to twenty-four hours after injection. Pitkin[10] has reported no macroscopic or microscopic changes in the spinal cords of dogs that came to autopsy two, four, five and nine days after the injection of 5, 10 and 20 per cent solutions of procaine hydrochloride.

The preparations of spinal anesthetics in most common use among surgeons today, namely, nupercaine and such preparations as spinocaine, gravocaine and scurocaine, which contain procaine as the chief constituent, were selected to form the basis of this study. Dogs, as nearly as possible of the same general size, weight and age, were selected as the experimental animals. Each dog was injected with one ampule, or one full human dose of one of the aforementioned compounds. The animals were then killed by bleeding at intervals of twenty-four hours, seventy-two hours, seven days, thirty days and ninety days after the injection. The cords were removed and preserved in solution of formaldehyde for histologic study. Other animals were injected with a dose comparable to that given a human being as computed on a relative basis according to body weight. These dogs were killed three weeks and five weeks after injection. All the injections were made into the subarachnoid space in the lumbosacral dural sac, with a technic essentially the same in all respects as that used in performing lumbar puncture on the human being. Clear spinal fluid was obtained each time before injection and no anesthetic was used other than a preliminary hypodermic of morphine sulphate. Laminectomies were not performed in any instance. Control animals were used in which lumbar puncture alone was done. In all, thirty-seven animals were studied.

In all the dogs the paralysis and sensory loss were limited to the posterior extremities. Blood pressure tracings were not taken. There were no marked untoward effects noted except in those animals of the first group which received the injection of spinocaine. All of these dogs showed repeated tonic spasms in the fore limbs with hypernea which resembled the convulsions caused by strychnine. These spasms were absent in the animals of the second group which received the smaller dosage of spinocaine, but these too had hypernea.

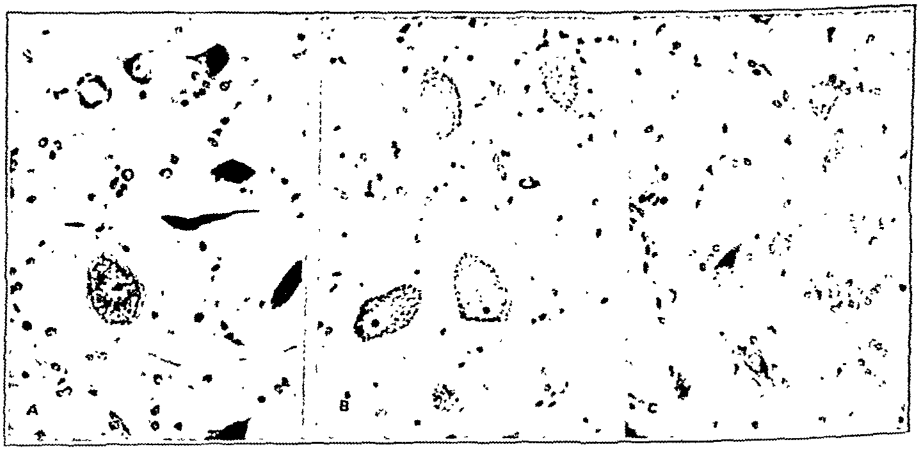

Fig. 2.—*A*, acute swelling in an anterior horn cell from the lumbar enlargement of the cord twenty-four hours after the injection of scurocaine. *B*, moderate swelling, eccentricity of the nucleus, dustlike Nissl substance about the nuclei and agglutination of Nissl substance about the periphery. Region of the lumbar enlargement three weeks after the injection of gravocaine. *C*, pale staining of the anterior horn cells with washed out appearance of the Nissl substance and edema of the nuclei; lumbar region, seven days after the injection of spinocaine. Cresyl violet stain. Reduced from a photomicrograph with a magnification of 325 diameters.

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[8] Babcock, W. W.: Spinal Anesthesia, an Experience of Twenty-Four Years, Am. J. Surg. 5: 571-576 (Dec.) 1928.

[9] Labat, G.: Elimination of Dangers of Spinal Anesthesia, Am. J. Surg. 5: 625-632 (Dec.) 1928.

[10] Pitkin, G. P.: Controllable Spinal Anesthesia, Am. J. Surg. 5: 537-553 (Dec.) 1928.

[11] Wossidlo, E.: Experimentelle Untersuchungen über Veranderungen der Nissl'schen Granula bei der Lumbalanästhesie, Arch. f. klin. Chir. 86: 1017-1053, 1908.

Five animals died within twenty-four hours after the injection irrespective of the drug injected and after apparently having recovered the use of their paralyzed extremities. These were not considered as part of the test group but the histologic picture present differed in no way from that in the dogs that were killed at the end of twenty-four hours. All the animals of the first group had complete anesthesia of the posterior limbs together with a complete paralysis. Those of the second group, which received the smaller doses of the anesthetics, showed a good anesthesia of the posterior limbs in all cases but never a complete paralysis.

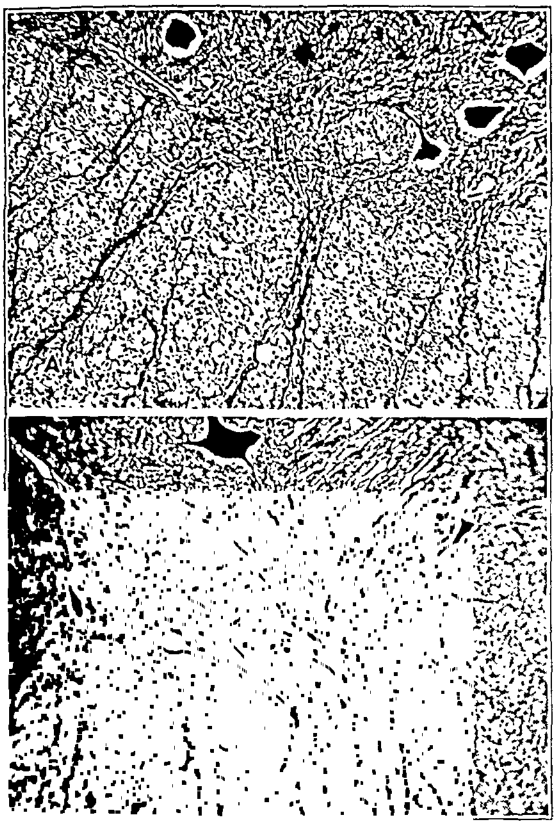

Fig. 3.—*A*, normal axis cylinders in the region of the anterior roots; cervical enlargement seven days after the injection of gravocaine. *B*, swollen and fragmented axis cylinders in the region of the anterior roots in the same animal; lumbar enlargement, seven days after the injection of gravocaine. Davenport stain. Reduced from a photomicrograph with a magnification of 95 diameters.

For the histologic studies, sections were taken from the middle of the cervical enlargement, the mid-dorsal region, the middle of the lumbar enlargement and the sacral region. These were stained by the hematoxylin-eosin, van Gieson, cresyl violet, Cajal silver stain method as modified by Davenport for embedded material, and the Marchi method.

The most constant change from the normal control picture was the apparent meningeal reaction, which was present to a variable degree in each case. It was more marked in those animals which had received the larger doses than in those of the second group. This consisted for the most part of an inflammatory reaction in the arachnoid with a thickening of the membrane and collections of proliferated arachnoidal cells and of plasma cells in the interstices of the membrane (fig. 1 *A*). In some areas there were collections of polymorphonuclear cells, but no bacteria could be found after diligent search. For the most part, the exudates were of the lymphocytic type. In the animals killed after thirty and ninety days, organization of this inflammatory reaction with fibrotic scarring of the meninges could be seen (fig. 1 *B*). This reaction was most marked in the lumbar and sacral regions of the cords examined and gradually diminished through the dorsal and cervical segments.

The changes observed in the ganglion cells are comparable to those described by Spielmeyer[12] following the use of stovaine intraspinally, but were not quite as pronounced as the changes described by him. Occasionally a cell was seen in an acutely swollen condition in the cords of the animals that received the larger doses and that were killed from three to seven days after injection (fig. 2 *A*). The most common picture found was a moderate degree of swelling of the cells, an edema of the nuclear membrane, an eccentricity of the nucleus and a finely granular appearance of the Nissl granules about the periphery of the cell (fig. 2 *B*). This was present in the anterior horn cells of the lumbar and sacral segments of all the animals irrespective of the size of the dosage or the drug injected. This condition is recognized as being a stage of retrograde degeneration. Spielmeyer was able to show that it was due to the action of the anesthetic solution on the anterior roots. We observed also an almost complete failure of some of the smaller cells to stain. The Nissl granules had a faded appearance and the nuclei of the cells stained lightly or not at all (fig. 2 *C*). How-

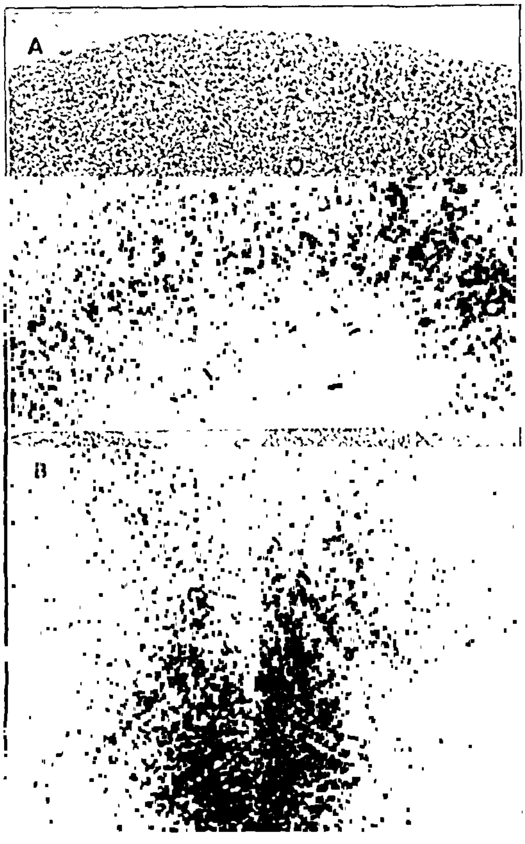

Fig. 4.—*A*, late stages of Marchi degeneration in the anterolateral region of the lumbar cord three weeks after the injection of scurocaine. *B*, degeneration in the posterior columns of the lumbar region three weeks after the injection of nupercaine. Marchi stain. Reduced from photomicrographs with a magnification of 65 and 75 diameters.

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[12] Spielmeyer, W.: Veränderungen des Nervensystems nach Stovainanästhesie, München. med. Wchnschr. 55:1629-1634, 1908.

ever, in the cords of those animals killed ninety days after injection we were able to find but few abnormalities in the appearance of the ganglion cells.

After impregnation by the silver stain the axis cylinders showed no abnormalities in the cervical and dorsal regions (fig. 3 *A*). In the lumbar and sacral regions there were swelling and fragmentation of the axons in animals killed after twenty-four and seventy-two hours, seven days and three weeks (fig. 3 *B*).

Specimens of the cords removed twenty and thirty days after injection and stained by the Marchi method revealed the same general picture of degeneration of the fiber tract as shown by Spielmeyer in his experiments with stovaine. The peripheral zones of the cords were affected in all cases to some degree (fig. 4 *A*). In the sacral regions the Marchi bodies were scattered rather diffusely throughout the cord. In the lumbar region the affected fibers were for the most part about the periphery of the cords and were more marked in the zones near the exit of the roots from the cord. In two animals, one with the smaller dosage of nupercaine and one with the larger dosage of spinocaine, an area was noted in the posterior columns in the lumbar region suggestive of ascending root degeneration (fig. 4 *B*). These areas were not seen, however, in the dorsal or cervical regions of the same cords.

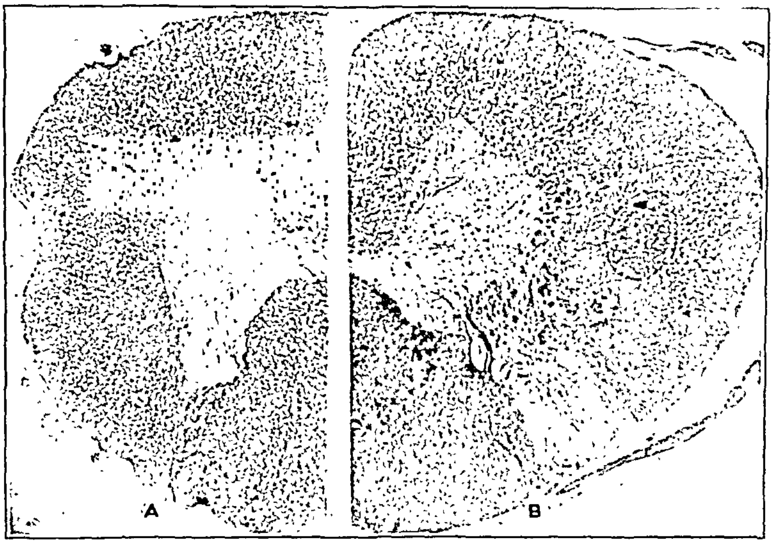

Fig. 5.—*A*, demyelinated zone about the periphery of a cord incubated in 1: 100 spinocaine solution in physiologic solution of sodium chloride. *B*, control incubated in physiologic solution of sodium chloride alone, showing no zone of demyelination. Weil stain. Reduced from a photomicrograph with a magnification of 27 diameters.

Since Weil[13] has recently shown that hemolytic toxins are also myelolytic and in view of the myelin changes noted in the Marchi stained sections of these animal cords, it was decided to conduct the following two experiments:

Following the technic used by Weil, pieces of spinal cord were removed from an animal killed by bleeding and subjected to incubation in various dilutions of these spinal anesthetics. Other pieces were incubated in physiologic solution of sodium chloride as controls. Aseptic precautions were used throughout. The dilutions varied from 1 : 10 to 1 : 200 parts of the anesthetic solution in sterile physiologic solution of sodium chloride. The pieces of cord, after eighteen hours' incubation, were fixed in solution of formaldehyde, embedded in celloidin, and stained with Weil's stain. A zone of demyelination was present about the periphery of all the cords subjected to incubation with the anesthetic solutions, while those incubated in the physiologic solution of sodium chloride alone failed to show this (fig. 5).

Experiments were also performed to determine the hemolytic action of the anesthetic solutions used in the animal experiments. Test tubes containing dilutions of the anesthetics in physiologic solution of sodium chloride, from 1 : 10 to 1 : 320, were set up with controls of physiologic solution of sodium chloride alone. To these were added washed corpuscles of human blood. They were then placed in an incubator at 37 C. for one and a half hours after which time hemolysis was found to be complete in all the tubes except the controls. Similar dilutions and controls were allowed to stand at room temperature for eighteen hours. After this time the control tubes were noted to consist of a layer of corpuscles which had settled in the bottom with clear saline solution above them. The tubes with the anesthetic solutions in them were seen to have a smaller layer of corpuscles in the bottom, a variable layer of reddish coloring above this, and clear fluid on top. An equal amount of the clear fluid from the top was decanted off from each of these tubes into another tube and each diluted with an equal amount of distilled water. The clear fluid was also decanted from above the corpuscles of the control tubes and diluted to the same degree. An equal amount of distilled water was placed in a third tube and an equal amount of physiologic solution of sodium chloride was placed in a fourth tube. To each of these tubes was added five drops of 1 per cent nile blue sulphate solution. The tubes containing the distilled water, the physiologic solution of sodium chloride and the decanted solution from the control tubes were all colored a light blue by the diffusing dye. Those tubes which contained equal amounts of clear fluid decanted from above the hemolysis taking place in the bottoms of the tubes containing the anesthetic solutions were all colored green by the dye diffusing through the solution. This was due to the lipoids which were freed in the solution by the lytic action of the anesthetic solutions on the walls of the red cells. These lipoids apparently diffused through the solution faster than the red color of the hemolysis.

SUMMARY

The spinal anesthetic solutions in common use today are hemolytic as well as myelolytic and would seem to act on the myelin of the nerve fibers as they do on the lipoids of the red blood cell membrane causing its dissolution.

After the injection of the spinal anesthetics in most prevalent use today into the spinal dural sacs of dogs, we have observed the following changes:

1. A varying degree of inflammatory reaction in the leptomeninges.
2. Passive changes in the ganglion cells of the gray matter of the cord similar to those seen in retrograde or so-called wallerian degeneration.
3. Swelling and fragmentation of the axis cylinders.
4. Signs of degenerative changes in the fiber tracts of the cord.

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[13] Weil, A.: Die Wirkung von Schlangengiften auf Nervengewebe, Arch. f. exper. Path. u. Pharmakol. **154**: 228-238, 1930.

The fact that the last three of these changes were not pronounced in the cords of animals which were allowed to live ninety days speaks against their permanent nature. This is also suggested by the incomplete picture of degeneration in the ganglion cells and the absence of Marchi evidence of degeneration in the cervical and dorsal segments. However, the inflammatory changes in the leptomeninges were so constantly present that they cannot be overlooked.

We hope to extend these studies to the spinal cords of human beings and to incorporate our results with those clinical observations which have been made in a careful neurologic examination of patients who have been operated on under spinal anesthesia. In many instances neurologic complications have been present for as long as a year after the injection of the spinal anesthetic.

54 East Erie Street.

COMMON ANOMALIES OF DUODENUM AND COLON: THEIR PRACTICAL SIGNIFICANCE

RESULT OF EIGHT YEARS' COMBINED CLINICAL AND ROENTGEN STUDY *

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This paper embodies the result of eight years' study of those anomalies of the digestive tract susceptible of roentgen demonstration. At various times Drs. Samuel Schechter and Jerome A. Marks have collaborated in this research. The material used for this study comprises a consecutive series of 3,000 private patients complaining of digestive disorders, approximately three fifths of whom had test meals and roentgen surveys in addition to the routine history and physical examination. The statistical method of attack was employed throughout in the belief that this would yield results most likely to be objective in nature and most open to confirmation or refutation by others. Having no preconceived notions to establish, we have been satisfied with presenting the facts first, leaving the matter of speculation to follow later. Nevertheless, before proceeding to a more detailed consideration of individual anomalies, it may be of value to formulate certain generalizations that have grown out of our study:

1. Anomalies may be regarded as expressions of organic constitutional inferiority or, in other words, points of actual or potential weakness in the body structure.

2. Anomalies may be divided into three classes: those incompatible with life (congenital atresia of the bile ducts), those compatible with life but not with robust health (high grade visceroptosis), and those compatible with life and health under favorable circumstances (uncomplicated Meckel's diverticulum).

3. The general tendency seems to be for the body as a whole to compensate for the presence of an anomaly. Hence symptoms do not occur unless this compensatory mechanism breaks down. This break may result from any of the following causes:

(*a*) Mechanical factors, such as strangulation of a silent Meckel's diverticulum.

(*b*) Infection, which may change a diverticulosis into a diverticulitis.

(*c*) Juxtaposition of two or more anomalies, such as the presence of ectopic gastric mucosa in a Meckel's diverticulum, which may lead to hemorrhage or perforation.

(*d*) Old age and increasing asthenia, especially prominent in the case of all hernias and herniations, in which the weak spots exist from birth but the fully developed condition occurs later in life.

(*e*) Associated functional instability. When neuroses and anomalies coexist, the former furnishes the underlying functional instability—the break in compensation—and the anomaly furnishes the particular digestive symptomatology for the clinical picture.

4. Because of variations in the compensatory mechanism, the symptomatology of anomalies is not continuous or progressive as in ordinary diseases. Thus, anomalies may cause symptoms in some of their owners all of the time, and in all of their owners some of the time, but are under no obligation to cause symptoms in all of their owners all of the time. This is the chief single differential between an anomaly and an acquired lesion and is of great importance in appraising the practical significance of anomalies.

In this paper we plan to bring up to date our original observations on anomalies of the colon and to present, in addition, some new data concerning the subject of duodenal bands.

DUODENAL BANDS

Historical Outline.—The occurrence of structures variously described as veils, membranes, adhesions, bands or ligaments in the right upper quadrant of the abdomen has long been known to anatomists. As far back as 1845, Huschke[1] described the ligament (ligamentum hepaticoduodenale) which bears his name. Since then, noteworthy anatomic studies have been contributed by Ancel and Sencert,[2] Harvey,[3] Bryant,[4] Makai[5] and Diebold.[6] In the past twenty-five years, surgeons have rediscovered these structures, the most important contributions being those of Morris,[7] Konjetzny,[8] Harris,[9] Homans,[10] Bainbridge,[11] Widerøe,[12] Taylor,[13] and the Kelloggs.[14] A careful roentgen study was made by Cole[15] in 1922. The outstanding clinical contributions are those of Niles,[16] and Duval, Roux and Béclère.[17] Transduodenal bands in children were studied clinically by Neff and Haden,[18] and were discussed at a symposium before the New York Academy of Medicine by Stockard,[19] Imboden,[20] Haynes[21] and Farr.[22] Despite the work done to date, it seems safe to say that this condition, especially its clinical picture, is not yet well understood by the profession at large.

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* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Huschke, E.: Encyclopédie anatomique, Paris, Baillière **5:** 199, 1845.

[2] Ancel, P., and Sencert, L.: Morphologie du péritoine et des ligaments hépatiques accessoires chez l'homme, J. de l'anat. et de la physiol. **319:** 353-389, 1903.

[3] Harvey, S. C.: Congenital Variations in the Peritoneal Relations of the Ascending Colon, Cecum, Appendix and Terminal Ileum, Ann. Surg. **67:** 641-687 (June) 1918.

[4] Bryant, John: Visceral Adhesions and Bands; Normal Incidence, Am. J. M. Sc. **163:** 75 (Jan.) 1922; **165:** 111 (Jan.) 1923.

[5] Makai, E.: Ueber angeborene peripylorische Membranen, Arch. f. klin. Chir. **138:** 131-133, 1925.

[6] Diebold, O.: Ueber Bauchfellverwachsungen Leichenbefunde bei 700 Sektionen, Arch. f. klin. Chir. **158:** 737-757, 1930.

[7] Morris, R. T.: Gall Spider Cases, Am. Med. **10:** 95-97, 1905.

[8] Konjetzny, G. E.: Pathologische Anatomie und Physiologie der Gallenblasen- und Gallengangserkrankungen, Ergebn. d. allg. Pathol. u. path. Anat. **14:** 712-873, 1910.

[9] Harris, M. L.: Constrictions of the Duodenum Due to Abnormal Folds of the Anterior Mesogastrium, J. A. M. A. **62:** 1211-1215 (April 8) 1914.

[10] Homans, J.: Symptoms and Treatment of Congenital Transduodenal Bands: Report of Eleven Cases, Boston M. & S. J. **175:** 665-673 (Nov. 9) 1916.

[11] Bainbridge, W. S.: A Study of Certain Bands in the Right Upper Abdominal Quadrant, M. Rec. **97:** 593-598 (April 10) 1920.

[12] Widerøe, S.: Primary Duodenal Adhesions, Norsk Mag. f. Laegevidensk. **83:** 89-102 (Feb.) 1922.

[13] Taylor, A. S.: Anomalous Abdominal Membranes; Their Influence upon the Digestive Tract, Ann. Surg. **75:** 513-574 (May) 1922.

[14] Kellogg, E. L., and Kellogg, W. A.: Chronic Duodenal Stasis, Radiology **9:** 23-38 (July) 1927.

[15] Cole, L. G.: Veils in the Right Hypochondrium and Their Differentiation from Other Organic Lesions and Spasm, Am. J. Roentgenol. **9:** 137-148 (March) 1922.

[16] Niles, W. L.: Congenital Fixation of Duodenum, Am. J. M. Sc. **169:** 328-336 (March) 1925.

[17] Duval, Pierre; Roux, Jean-Charles; and Béclère, Henri: The Duodenum; Medical, Radiologic and Surgical Studies, St. Louis, C. V. *Mosby Company*, 1928.

Description and Roentgen Appearance.—Duodenal bands represent anatomically the unabsorbed portion of the free edge of the lesser (hepatogastric) omentum and are called variously hepatoduodenal, hepatocolic or cystocolic ligaments, depending on the actual course of the anomalous membranes. They either cross or are attached to the duodenum in its first or second portion. When the first portion alone is involved, various deformities of the cap are produced in the roentgen appearance. This group is not discussed here, the present study dealing exclusively with bands involving the second portion of the duodenum. The latter cause a characteristic roentgen appearance (fig. 1) when the patient is examined in the erect anteroposterior position immediately after the stomach has begun to empty the opaque meal. Under these circumstances the second portion of the duodenum appears pulled out to the right (for a varying distance and at a varying angle) instead of descending parallel to or behind the antrum of the stomach, as in the normal condition. In extreme cases the entire second portion is displaced in this fashion, but in others only the uppermost part and less often some other segment of the descending limb is so involved. In many cases a sharp angle results between the fixed upper and the free lower portion. This arrangement acts as a point of irritation or transient obstruction. Marked stasis, such as is usually described in the literature under the term "duodenal obstruction," is not noted. Retroperistalsis was observed in at least 10 per cent of our cases. Adhesions to the hepatic flexure of the colon were occasionally demonstrable. The most common associated anomaly is a low cecum, which we observed twice as often (36 per cent) as in our unselected material (18 per cent).

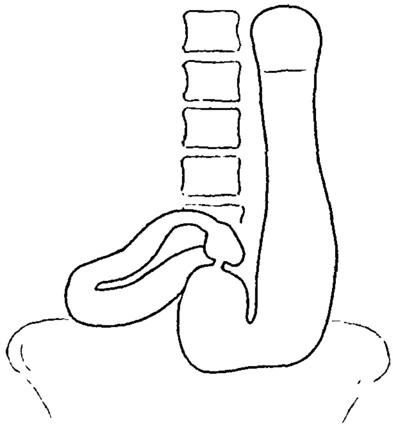

Fig. 1.—Roentgen appearance of duodenal bands pulling second portion of duodenum to right.

Most of the bands in the right upper quadrant are undoubtedly of congenital origin, although of course it would appear that acquired adhesions may also occur. Harvey found that the development of the cystocolic fold reaches a stable condition sometime previous to birth, and Bryant has shown that the incidence of these bands in the fetus is practically the same as that in the adult up to the age of 40 years. Makai found them frequently in infants and young children.

Incidence.—Adhesions of the second portion of the duodenum were encountered 85 times in our series of 1,754 roentgenographed patients, an incidence of 4.8 per cent. A search of the literature discloses no exactly comparable figures, but anatomic studies of the bands in this neighborhood, viz., hepatoduodenal, hepatocolic and hepatoduodenocolic, reveal an incidence of from 15.5 to 30 per cent. In fact, Bryant has shown that the hepatocolic ligament is the most frequent congenital adhesion in both sexes and at all ages. This discrepancy between the roentgen and the postmortem evidence can probably be explained either by the fact that adhesions of the first portion are excluded in our present series, or because the existence of some of the bands may have been overlooked at examination. The presence of duodenal bands was operatively confirmed in six of our cases.

Table 1.—*Duodenal Bands*

Incidence	Per Cent
General, in 1,754 roentgenographed patients	5
Sex:	
Females	79
Males	21
Habitus:	
Asthenics	53
Sthenics	8
Associated low cecum (general incidence 18%)	36
Clinical Features	Per Cent
Nausea (general incidence 15%)	44
Headaches (general incidence 23%)	44
Vomiting (general incidence 20%)	41
Vertigo (general incidence 3%)	20
Constipation (general incidence 46%)	54
Pain, upper abdominal (general incidence 28%)	40
Appendicitis, operation (general incidence 17%)	17
Appendicitis, "pus" (general incidence 16%)	8

Sex.—Sixty-seven of our patients (79 per cent) were females and 18 (21 per cent) were males. Practically the same incidence is reported by other clinical observers. Thus, Niles gives 80 per cent females in thirty-nine cases, and Taylor gives 74 per cent females in forty-seven cases chiefly of this variety. On the other hand the anatomists report that the distribution of these bands is approximately equal between the sexes (Bryant, 297 cases), or else decidedly favors the males (Harvey, 20 cases; Ancel and Sencert, 124 cases; Makai, 100 cases). The explanation of this discrepancy is not yet at hand.

Habitus.—In our group, forty-five patients (53 per cent) were asthenic and but seven (8 per cent) were sthenic.

Symptoms.—Only ten (11.7 per cent) of our cases showed no symptoms that could be definitely referred to the presence of duodenal bands. In the majority of cases the symptoms are characteristic enough to constitute a fairly definite clinical picture. The manifestations may be described as falling into two groups: reflex or toxic, and local. The former have been described in the literature under the name "duodenal migraine." They are in every way comparable to the reflex manifestations of low cecum. Nausea was present in thirty-eight cases, an incidence of 44 per cent, which is to be contrasted with a general incidence of 15 per cent in our 3,000 unselected cases. Headaches were also present in 44 per cent, to be compared with a general incidence of 23 per cent. Vomiting, frequently of bile, was present in thirty-five cases, an incidence of 41 per cent, as against a general incidence of 20 per cent. Vertigo was present in 20 per cent, as against a general incidence of 3.5 per cent. Constipation occurred in forty-six patients, an incidence of 54 per cent) somewhat higher than the general frequency of this complaint (46 per cent).

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[18] Neff, F. C., and Haden, R. L.: Congenital and Transduodenal Bands, Am. J. Dis. Child. **30:** 82-86 (July) 1925.

[19] Stockard, C. R.: Developmental Peritoneal Bands in Children, unpublished manuscript, 1931.

[20] Imboden, H. M.: Developmental Peritoneal Bands in Children, Unpublished manuscript, 1931.

[21] Haynes, R. S.: Developmental Peritoneal Bands in Children, unpublished manuscript, 1931.

[22] Farr, C. E.: Developmental Peritoneal Bands in Children, unpublished manuscript, 1931.

All these complaints are closely linked with the nervous instability of these patients, as in the case of low cecum, which will be described later.

The local symptoms are epigastric distress or pain. Pain occurred in forty-four cases, or 40 per cent, but, as associated organic lesions could not be excluded in thirteen cases, the incidence of pain due to bands as such is perhaps to be conservatively estimated as being nearer 25 per cent. In any event, our observations correspond closely to those of Niles (30 per cent "painful cases"). The pains are either of the hunger type suggestive of duodenal ulcer or of the more irregular and spasmodic type resembling gallbladder disease. However, their intensity seems to be less than in organic lesions. As may be expected, they are referred to the middle and right portions of the epigastrium. They are sometimes relieved by food and by the recumbent prone or right lateral position.

A previous appendectomy had been performed in 30 per cent of our cases (general incidence, 17 per cent), and a pus condition (general incidence, 16 per cent) was revealed in only 8 per cent of this number. The high incidence of this operation, which has also been pointed out by Taylor and Niles, may possibly be explained by the relatively frequent association of low cecum, a condition in which the incidence of previous appendectomy is unusually high.

Explanation of Symptoms.—It has been emphasized that in the cases we are discussing there is no gross obstruction but rather a relatively mild irritation of the duodenum associated with transient stasis or reversal of motility. Clinically, it is well known that a small delay high in the intestinal tract may be followed by more widespread systemic upset than a much greater stasis lower in the bowel. It has been shown experimentally by Ivy,[23] Keeton,[24] Wheelon[25] and others that the nausea, vomiting and many related symptoms (all of which may occur in the cases under discussion) are elicited by duodenal stimulation or irritation. It is particularly interesting to note that, of the sixty patients in whom Keeton injected solutions into the duodenum, twenty-six, or 43 per cent, showed nausea. Since this figure corresponds exactly with the incidence of nausea and vomiting in our cases, it may possibly represent the actual average frequency of response by vomiting to duodenal irritation in the human subject.

The association of low cecum with duodenal bands (also mentioned incidentally in some of Taylor's protocols) may still further increase the temporary duodenal stasis. The possible mechanism involved will be discussed later.

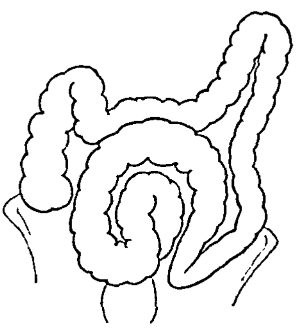

Fig. 2.—Redundant colon: large central pelvic loop.

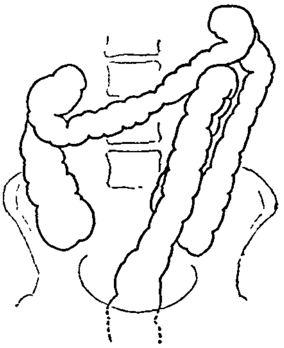

Fig. 3.—Redundant colon: double splenic flexure with straight efferent loop.

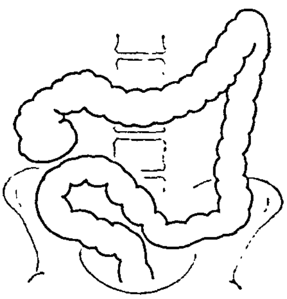

Fig. 4.—Redundant colon: pelvic loop to right.

Treatment.—Medical management suffices to control the symptoms in most cases. The treatment should be directed toward correcting the ptosis and malnutrition, improving the nervous stability and restoring the colon function. Rest in the prone position after meals, and hot saline drinks in the fasting state are sometimes helpful. If conservative measures fail, results may be expected from surgical therapy. The procedure consists essentially of division of the adhesions; in some cases short circuiting operations are needed. Four of our own patients were operated on, all with relief, the longest period of observation being three years. In Taylor's cases, 32 per cent of the patients were cured and 52 per cent were much relieved. The operative mortality was 2 per cent. Niles "knows of no abdominal condition which affords a greater assurance of relief by surgery." It is obvious that such good results can be secured only by careful study, observation and selection of cases.

REDUNDANT COLON

Description and Roentgen Appearance.—The redundant colon (dolichocolon) is one which is too long to fit into the body of its owner without undergoing reduplication. The distal colon is the part usually though not invariably affected, the most common variety being an enlarged sigmoid loop centrally placed and rising well out of the pelvis (fig. 2). Two subvarieties are encountered often enough to receive the descriptive terms "double splenic flexure with straight efferent loop" (fig. 3) and "pelvic loop to the right" (fig. 4). Kinks of the colon, presumably due to adhesions, are rather frequent. Of these, 107 cases were encountered in our series but have been excluded from the group of true redundant colons and are not here discussed. Hirschsprung's disease differs from the redundant colon by the presence of enormous dilatation of the affected loops in the former.

The diagnosis of redundant colon is made by roentgen examination after the opaque enema to show the form, and after the opaque meal to show the function, of the large intestine. The amount of enema fluid necessary to fill to the cecum averages 46 ounces in redundant colons and has reached as high as 120 ounces. These figures are to be contrasted with the average 38 ounces required to fill the normal colon completely.

In many cases the stomach is displaced and deformed. The usual displacement is to the right and, since the cardiac end is fixed, the resulting appearance has been termed "cascade" stomach. In some cases the stomach is inverted or rotated on its horizontal axis so that it becomes retort shaped.

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[23] Ivy, A. C.; Vloedman, D. A., and Keane, J.: The Small Intestine in Hunger, Am. J. Physiol. **72**: 99 (March) 1925.

[24] Keeton, R. W.: Nausea and Related Sensations Elicited by Duodenal Stimulation, Arch. Int. Med. **35**: 687-697 (June) 1925.

[25] Wheelon, Homer: Symptoms Associated with Duodenal Retention and Reverse Motility, J. A. M. A. **86**: 326-330 (Jan. 30) 1926.

Incidence.—In 1,614 roentgenographed patients, 258 cases of redundant colon were encountered, an incidence of 16 per cent. Analysis of this relatively large group shows that the anomaly affects both sexes (54 per cent females) and both extremes of habitus (28 per cent sthenics vs. 24 per cent asthenics) with approximately equal frequency. Previous discrepancies may be explained on the basis of insufficient material.

Clinical Picture.—Since the publication of our first study [26] in 1924, other clinicians (Larimore,[27] White,[28] Gauss,[29] Dagnino [30]) have agreed that this anomaly probably represents a definite entity with a constant incidence and clinical picture. Although, as with all anomalies, symptoms may be absent or variable, the combination of constipation, pain and gas distress is characteristic.

Table 2.—*Redundant Colon*

INCIDENCE	Per Cent
General, in 1,614 roentgenographed patients	16
Sex:	
Females	54
Males	46
Habitus:	
Sthenics	28
Asthenics	24
CLINICAL FEATURES	**Per Cent**
Constipation (general incidence 46%)	69
Gas distress (general incidence 38%)	70
Pain, abdominal (general incidence 47%)	52
Pain, right lower quadrant (general incidence 9%)	12
Tenderness right lower quadrant (general incidence 19%)	24
Appendicitis, operation (general incidence 17%)	19
Appendicitis, "pus" (general incidence 16%)	16

The constipation, which is present in 69 per cent of cases (general incidence, 46 per cent), usually dates from birth, is characterized by long intervals between stools (often one week), and is on the whole not associated with marked systemic or general upsets. Gas distress is present in 70 per cent of cases as against a general incidence of about 38 per cent in our unselected material. There is often localized distention corresponding to the redundant loop, or else belching in a misdirected effort to relieve pressure in the splenic flexure.

Pain is present somewhere in the abdomen in 52 per cent of the cases (general incidence, 47 per cent). It is always due to superimposed spasm proximal to the point of redundance and may be associated with localized colitis, especially in patients who have acquired the cathartic or enema habit. The pains may suggest carcinoma, heart disease, gallbladder disease or appendicitis. Pain in the right lower quadrant was present in 12 per cent (general incidence, 9 per cent), and tenderness in the right lower quadrant occurred in 24 per cent (general incidence, 19 per cent). Appendectomy was performed in 19 per cent as compared to a general incidence of 17 per cent in our basic 3,000 cases.

Volvulus, although not encountered in this series, can occur only when the mesentery is elongated, as in redundant colons. It is our opinion, confirmed by the actual observations of several surgeons, that this accident usually follows violent efforts at purgation, resulting in irregular and atypical peristalsis.

Treatment.—The management of redundant colon consists essentially in the withdrawal of all forms of colonic abuse and the restoration of normal function by conservative procedures. The details of this therapy have been published elsewhere. The prognosis for relief is good. Surgical intervention should be reserved for cases of volvulus only.

THE HIGH CECUM

Description and Roentgen Appearance.—The cecum may be arrested in its embryologic descent at any stage between the liver and its normal resting place, which is the middle of the right iliac fossa. Since subhepatic ceca are rare (fig. 5)—we encountered but twenty-one cases in which the cecum was at or above the iliac crest—we have included all ceca occupying a position not lower than the upper third of the iliac fossa in a group which we have arbitrarily designated "high cecum" (fig. 6). The exact roentgen criteria delimiting this group have been published elsewhere.[31]

The diagnosis of high cecum is best made roentgenologically nine hours after the ingestion of an opaque meal. In some cases the cecum is attached to the liver, but the proximal transverse colon hangs down, festoon-like, in such fashion as to resemble a normal ascending segment. This may cause confusion unless observations are made in the right oblique position. In some 4 per cent of cases (general incidence, 2 per cent) the vacant right iliac fossa is occupied by a loop of pelvic colon. This arrangement has already been described as a subvariety of the redundant colon. Its recognition is of some clinical importance because it may still further confuse surgeons in their attempt to locate the ectopic appendix in emergency operations in cases presenting high cecum.

Table 3.—*High Cecum*

INCIDENCE	Per Cent
General, in 1,583 roentgenographed patients	6
Sex:	
Males	73
Females	27
Habitus:	
Sthenics	71
Asthenics	5
CLINICAL FEATURES	**Per Cent**
Headaches (general incidence 23%)	18
Vomiting (general incidence 20%)	20
Constipation (general incidence 46%)	35
Appendicitis, operation (general incidence 17%)	24
Appendicitis, "pus" (general incidence 16%)	36

Incidence.—In our series of 1,583 roentgenographed cases, high ceca were observed in 102 (6 per cent). Males predominated strikingly over females (73 per cent vs. 27 per cent), as did sthenics (71 per cent) over asthenics (5 per cent).

Clinical Picture.—On the whole, this group is composed of robust individuals remarkably free from the common manifestations of functional digestive upset. In this respect they offer a striking contrast to the group of patients with low cecum next to be described.

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[26] Kantor, J. L.: A Clinical Study of Some Common Anatomical Abnormalities of the Colon: I. The Redundant Colon, Am. J. Roentgenol. **12**: 414-430 (Nov.) 1924.

[27] Larimore, J. W.: The Human Large Intestine in the New-Born and in the Adult, Ann. Clin. Med. **5**: 439-463 (Nov.) 1926.

[28] White, F. W.: Studies of the Redundant Colon, Tr. Am. Gastro-Enterol. **29**: 132-146, 1927.

[29] Gauss, Harry: Redundant Colon, Arch. Surg. **15**: 560-579 (Oct.) 1927.

[30] Dagnino, Angel: Dolicocolias, Semana méd. **2**: 1780-1815 (Dec. 11) 1930.

[31] Kantor, J. L., and Schechter, Samuel: Colon Studies: V. The High Cecum, Am. J. Roentgenol. **19**: 101-111 (Feb.) 1928.

Using headaches and vomiting as typical expressions of functional digestive disorders, we find that the incidence of these complaints (18 per cent and 20 per cent, respectively) is about that in normal ceca (i. e., in the general series) but is decidedly less than in low ceca.

Recalling the high incidence of constipation in redundant (long) colon, viz., 69 per cent, it is interesting to observe that constipation occurs in but 35 per cent of cases of high cecum. Since this figure is also appreciably lower than the general incidence of constipation in nonselected cases, it would appear safe to make the generalization that constipation varies directly as colonic length.

The relation of high cecum to appendicitis is interesting. In the first place, the appendix being located at or near the liver, instead of in the right iliac fossa, the clinical picture may resemble acute cholecystitis more than appendicitis. Furthermore, the presence of actual inflammation ("pus appendix") is over twice as likely (36 per cent) in high cecum as in the average appendectomy case (16 per cent) and more than three times more likely than in low cecum (10 per cent).

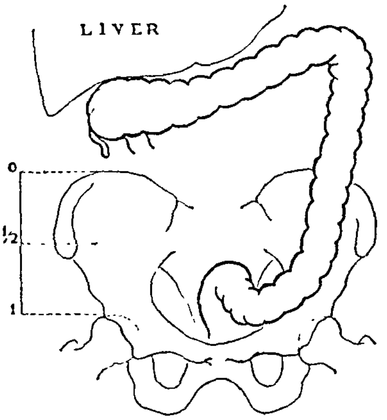

Fig. 5.—High cecum: subhepatic position (rare).

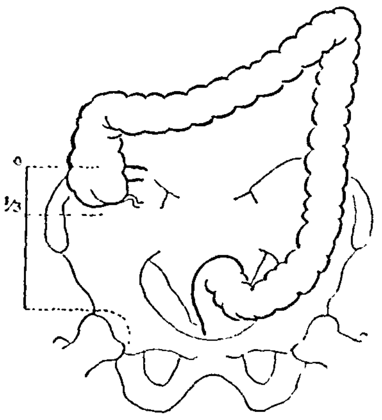

Fig. 6.—High cecum: common variety.

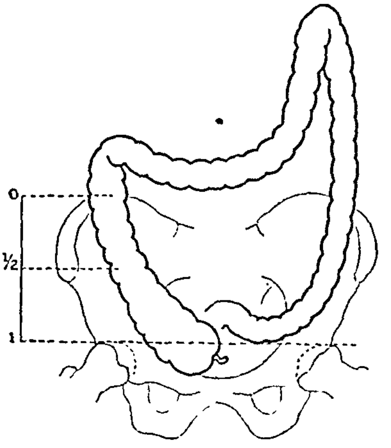

Fig. 7.—Low cecum, showing roentgen landmarks.

Treatment.—High cecum, as such, requires no treatment. One should take no chances with symptoms suggesting appendicitis and must be prepared to find the appendix high in the abdomen.

THE LOW CECUM

Description and Roentgen Appearance.—The low cecum is the result of embryologic hyperdescent, the organ prolapsing below the right iliac fossa into the true pelvis. The anomaly furnishes a complete and striking contrast to the high cecum just described.

The diagnosis of low cecum is best made nine hours after the ingestion of the standard opaque meal. This anomaly may be said to exist when the cecal tip reaches down to or below the midpelvis, as determined by a horizontal line connecting the tops of both acetabular cavities on the standard prone film (fig. 7). In accordance with our concept that the low cecum represents a true overgrowth rather than a local expression of ptosis, the length of the cecocolon in these cases is increased from the average 7 inches (17.8 cm.) in the normal cecum to an average of 9 inches (22.9 cm.), with the maximum reaching 13 inches (32.5 cm). The cecal tip was fixed in 32 per cent of the cases. The rest of the cases showed a mobility of more than 1 inch (2.5 cm.).

The most common associated anomaly was represented by duodenal bands, as previously described, which occurred in 11 per cent of cases; i. e., over twice the general incidence.

Incidence.—The low cecum is the most common anomaly of the colon. It was observed 284 times in our series of 1,581 roentgenographed patients, an incidence of almost 18 per cent. Women make up 72 per cent of the patients, and asthenics predominate over sthenics in the proportion of four to one (48 per cent to 12 per cent).

Clinical Picture.—Low cecum is, we believe, responsible for a definite symptomatology. The complaints are of two orders; namely, general and local. The general symptoms are those ordinarily regarded as reflex or toxic in character. Chief among these are vomiting, which occurred in 43 per cent (general incidence, 20 per cent), and headache, which occurred in 38 per cent (general incidence, 23 per cent).

The vomiting in these cases is habitual and rather easy, being provoked by strain, fatigue, emotional excitement, dietary indiscretion, menstruation and headaches. The patient may take this symptom so much for granted that she may fail to mention it in the history unless specifically questioned.

Table 4.—*Low Cecum*

INCIDENCE	Per Cent
General, in 1,581 roentgenographed patients	18
Sex:	
Females	72
Males	28
Habitus:	
Asthenics	48
Sthenics	12
Associated duodenal bands (general incidence 5%)	11
CLINICAL FEATURES	**Per Cent**
Vomiting (general incidence 20%)	43
Headaches (general incidence 23%)	38
Pain, right lower quadrant (general incidence 9%)	13
Tenderness, right lower quadrant (general incidence 19%)	23
Appendicitis, operation (general incidence 17%)	24
Appendicitis, "pus" (general incidence 16%)	10

The headaches are often of the migraine type and are caused by the same factors as is the vomiting. Both these major manifestations may be represented by less severe symptoms. Thus, vomiting may be replaced by nausea, train sickness or car sickness, and headaches by vertigo. These patients often exhibit other stigmas of physical, nervous or emotional instability.

The local symptoms are referable to the right lower quadrant. Spontaneous pain in this region, which occurs in 9 per cent of all patients, is observed in 13 per cent of cases of low cecum. Tenderness in the right lower quadrant is also present more often (23 per cent) than in the general series (19 per cent). When cecal stasis is associated with low cecum, the figures increase to 21 per cent and 28 per cent, respectively. It is undoubtedly for this reason that patients with low cecum constitute the most frequently appendectomized group of colon anomalies (24 per cent vs. 17 per cent, general incidence). Appendix removal is obviously unwarranted in most cases because: (1) There is nothing in the history of low cecum on which a diagnosis of appendicitis can be properly based, and (2) the observations at operation show the smallest proportion of "pus" cases of any group of colon anomalies that we have studied; namely, 10 per cent as against a general incidence of 16 per cent and an incidence in high cecum of 36 per cent.

Explanation of Symptoms.—In our original article [32] on low cecum, no explanation was offered for the symptoms encountered. Although it can hardly be claimed that the problem of mechanism has been solved, it is felt that progress has been made in the intervening six years. According to our present conception, the explanation is somewhat complicated and probably embraces the following considerations:

1. The local symptoms are presumably caused by cecal or proximal colon stasis.[33] These conditions are from one and a half to three times more common in low than in normal or high cecum. The pain and tenderness may therefore be readily explained by increased intracecal tension (local spasm).

2. To account for the reflex toxic symptoms, two distinct hypotheses are conceivable. According to the first, the cause resides in the cecum, cecal stasis with absorption of a toxin being the responsible factor. The available evidence is against the acceptance of any such hypothesis. Not only has no toxin been identified, but actual analysis of cases has shown that it is only in low ceca that cecal stasis is associated with increased frequency of headache and vomiting. Cecal stasis in normal or high ceca does not act so. Therefore the symptoms cannot be due to stasis as such, because this should be equally operative in all locations of the cecum.

According to the second hypothesis, the cause of the symptoms resides in the duodenum, where transient stasis is produced, no gross obstruction taking place. The transient retentions are assumed to result from the intermittent drag of the low cecum, the pressure being mediated through any of the structures that cross the second or third portion of the duodenum. These structures are the transverse mesocolon, crossing the second portion, and the right and middle colic artery, the superior mesenteric artery, and the root of the mesentery of the small intestine crossing the third portion. According to this view, the actual occurrence of symptoms would be favored by such features as the erect posture, stasis in the cecum, mesenterialization (hypofixation) of the ascending colon with increased mobility of the cecum, and the presence of duodenal bands. The latter adhesions would, by fixing the duodenum, tend to "step up" the effect of colonic dragging so that subminimal stimuli might become effective. The possible rôle of colonic hyperfixation has not yet been adequately appraised but is now being studied.

This theory receives perhaps its chief support from the publications of Bloodgood,[34] Kellogg, Quain,[35] Carslaw,[36] McConnell,[37] Nesbitt [38] and Duval, who have observed the rôle played by "prolapsed ceca," "giant ceca," and "right coloptosis" in the production of gross duodenal obstruction. Bloodgood, for example, actually resected the right colon in eleven cases of chronic dilatation of the duodenum and found these patients well, up to fifteen years later. Other surgeons have performed colopexy, with relief in similar obstructive cases. As already mentioned, in none of our patients were the symptoms so pronounced as to warrant surgical intervention.

Treatment.—The medical management of low cecum consists in treating the asthenic habitus, controlling the neurosis, fattening the patient, and relieving the cecal stasis, which may be accomplished by treating the distal constipation when present, thus clearing the track ahead.

Surgical treatment may be considered in those rare cases which, after careful study and prolonged and conscientious conservative treatment, show no evidence of improvement, though the patients demand that something be done for their relief. Under such circumstances, colofixation may be attempted.

SUMMARY

1. Statistical data resulting from eight years' combined clinical and roentgen study are presented for the following anomalies: (*a*) transduodenal bands, (*b*) redundant colon, (*c*) high cecum, and (*d*) low cecum.

2. The chief clinical aspects of transduodenal bands are their occurrence in asthenic women, their association with "duodenal migraine," and their mimicry of duodenal ulcer and gallbladder disease.

3. The chief clinical aspects of redundant colon are its occurrence in all builds and both sexes, its association with marked constipation and, less strikingly, with pain and gas.

4. The chief clinical aspects of high cecum are its occurrence in eupeptic sthenic males, and the ectopic position and increased tendency to inflammation of the appendix.

5. The chief clinical aspects of low cecum are its occurrence in asthenic women and its association with headaches and vomiting, and discomfort in the right lower quadrant.

6. An explanation is offered for the mechanism of the production of the toxic or reflex symptoms in low cecum.

7. The general significance of digestive anomalies is summarized.

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[33] Kantor, J. L.; Schechter, Samuel; and Marks, J. A.: Colon Studies: VI. Cecal Stasis: Its Clinical Significance and Relation to Proximal Colon Stasis, Am. J. Roentgenol. **24**: 1-20 (July) 1930.

[34] Bloodgood, J. C.: Chronic Dilatation of the Duodenum, Internat. S. Digest **1**: 259-270, 1926.

[35] Quain, E. P.: Chronic Duodenal Obstruction: Etiology, Symptoms and Treatment, New York M. J. **116**: 651-654 (Dec. 6) 1922.

[36] Carslaw, R. B.: Right Sided Visceroptosis, Brit. J. Surg. **15**: 545-604 (April) 1928.

[37] McConnell, A. A., and Hardman, T. G.: Abnormalities of Fixation of the Ascending Colon, Brit. M. J. **10**: 532-557 (April) 1923.

[38] Nesbitt, G. E.: Partial Duodenal Obstruction, Irish J. M. Sc. **5**: 147-186 (April) 1924.

GRIPPAL INFECTIONS

POSTFEBRILE CARDIOVASCULAR DISTURBANCES, USUALLY UNRECOGNIZED: REPORT OF CASES *

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Many patients come to Atlantic City to recuperate after grippal infections, and they offer an unusual opportunity for study of the postfebrile and convalescent stages of this interesting disease in various types of people.

There seems to be a feeling on the part of many physicians that "grip" is nothing more than a systemic cold and, because of the time honored relationship between acute colds and beginning respiratory disease, that the severity of an attack of grip is always dependent on the involvement of the bronchial tubes and the lungs, and all other complications have no further significance than that they do occur; if a patient escapes pneumonia or other complications of the chest, he is quite all right.

There is, to begin with, a marked variance of opinion concerning what an attack of grip may do, and unless the possibility of a general infection is suspected, complications other than those of the respiratory system will not be appreciated.

Are other organs besides the lungs apt to become involved in grippal infections or do the various systems of the body show changes following every acute illness, regardless of what it may be? That is, does the heart muscle become impaired during grip, whether recognized or not, or must one presume that the recuperative powers of the myocardium are so great following any infection that one cannot say that heart disease exists, until a greater disturbance has taken place than is usually manifested by cardiac weakness or impairment of function?

These are important questions as far as treatment is concerned and should be answered intelligently, if there is to be hope of doing more for incipient myocardial disease in the future than has been done in the past.

The clinical interpretation of physical observations in heart disease has likewise passed through many phases during recent years and may help to explain why many physicians do not consider that myocardial disturbances have occurred during such acute diseases as grip unless the heart shows outspoken evidences of structural changes.

One diagnostic dogma regarding the efficiency of the heart muscle has been replaced by another, only in turn to be superseded by a newer conception of what has happened or by a more concise means of interpreting clinical facts.

Prior to thirty or thirty-five years ago, only organic valvular lesions were accepted as indicating definite cardiac disease. Any heart not showing such defects was considered normal. Hypertrophy and dilatation were the results of incompetent valves and were rarely thought to be of primary origin.

Following the advent of the x-rays and of cellular pathology, a second group of heart diseases was added because cardiac enlargement could be demonstrated without the presence of valvular abnormality.

With the introduction of the electrocardiogram, a third group, which was not suspected before, came into being; namely, disturbances in heart muscle and nerve conduction, and evidences of coronary disease.

During the World War, a fourth group was encountered, which did not show any valvular abnormality, or enlargement on roentgen study or any disturbances detectable by the electrocardiogram. The patients in this group were physically unfit, nevertheless, and were as much of a cardiac riddle as any type had been in the past. Through lack of a better name, this condition was called cardiovascular asthenia, or the effort syndrome.

Several years ago, Christian added another group of incipient myocardial disease, with beginning hypertrophy without other evidences of heart abnormality. Christian felt that a heart that enlarged, from any cause whatever, was no longer normal and that, although enlargement was generally regarded as a physiologic step in normal compensation, it was, in reality, beginning myocardial retrogression.

It is my purpose to discuss another type of cardiac instability or weakness following grip, which apparently is not appreciated or generally recognized. These cases presented none of the usual evidences of cardiac disease; that is, they showed no leaky valves, no increase in the size of the heart under roentgen study, and no changes in the electrocardiogram; they were not of the effort syndrome type, and they were not what Christian referred to as early hypertrophy.

Moreover, the patients did not give histories of previous hypertension or hypotension and were not beyond 50, when myocardial changes incident to age are expected to begin. In other words, they were selected from individuals who were physically fit, prior to their attack of grip.

They all showed a marked weakness of the cardiovascular system following exercise and were physically incapacitated until this disturbance was corrected. Hence there is ample clinical evidence to make one believe that these conditions if allowed to go too long become important etiologic factors in heart muscle weakness, if they do not develop into definite myocardial disease.

There is a tremendous difference between grip and the old fashioned systemic cold. If this fact were better appreciated, many of the circulatory tragedies that come into our offices might be prevented. Moreover, there seems to be no relationship between the duration of an attack of grip and the degree of myocardial weakness that follows. In fact, some patients who are not conspicuously ill have the most prolonged convalescence, or experience the greatest difficulty in recovering. Those who have pneumonia or severe bronchitis seem to react best or recover soonest.

Because of the nondramatic symptomatology of these apparently trivial illnesses, many physicians ascribe the weakness and nervous upheaval of the patients to other causes, such as added expenses, increased worries and the desire to get back to business, all of which, of course, means that the patient is not properly examined.

Is the thought too far afield to suggest that there is considerable clinical evidence to make one feel that the virus of grip, or whatever the organism may be, attaches itself to the tissues of the body in some unknown manner, where it may inflict damage to the myocardium by toxic absorption over a long period of time? Such a possibility would help to explain the marked circulatory weakness found in patients presenting the nonsevere forms of grip who have previously been all right. If this attachment does not occur, how

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can one explain the profound physical incapacity of these patients for so many weeks and months?

They all present practically the same type of history and date their weakness and loss of "pep" from their attack of grip several weeks or months before. Hence there is no illness (except possibly rheumatic fever or acute endocarditis) in which the physician should make so certain that the patient is not harboring a focus of infection that might enter the blood stream and damage the heart muscle, as in grip.

I wish to make an earnest plea for more serious consideration and thought being given these milder forms of grip during the convalescent stage. One sees individuals who have not felt well since their attack of grip, as long ago as ten years; yet many emphasize the fact that they were not critically ill. They probably got up too soon, or long before the processes of repair had taken place. Today, their chief abnormality is myocardial weakness. Hence one must presume that the milder forms that are now seen, if neglected, may show the same type of clinical symptoms in ten years.

One of the worse habits in clinical procedure is to allow certain diagnostic dogmas to become so firmly fixed in mind that nothing else can be seen. The feeling that most heart defects are dependent on valvular disease, that myocardial inefficiency is in proportion to the enlargement of the heart, and that the pulse rate is a true index of heart muscle tone has done more to cloud the true significance of early myocardial changes following acute infections than anything else.

Unfortunately there are no detectable means of accurately measuring myocardial disease. The muscle may be severely damaged and yet not show any specific evidence of what has occurred. This is best shown by referring to the myocardial changes during pneumonia. What is it that so weakens the pneumonic heart? No one knows, unless it is a toxic condition. Nothing is found that enables the pathologist to say "This is a pneumonic heart." So it is with grip. The heart muscle is markedly weakened, but nothing specific is seen.

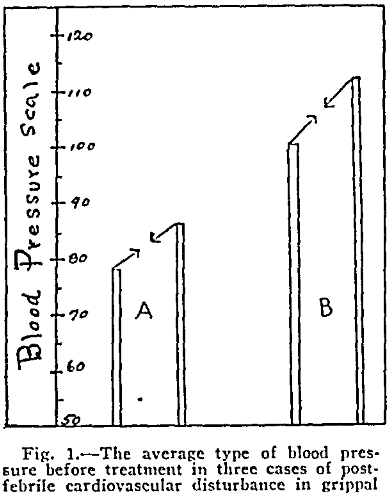

Fig. 1.—The average type of blood pressure before treatment in three cases of postfebrile cardiovascular disturbance in grippal infections: *A*, diastolic pressure poorly supported, indicating lack of muscle tone; *B*, systolic pressure like pulsus alternans, weak muscle, poor tone.

There is too great a tendency on the part of many to get away from the fundamentals of diagnosis that characterized the skill of the clinicians of a few decades ago. They did not practice short cuts to diagnosis but sought what they found. Today we have canned diagnosis as well as canned soup. If the can is empty there is no soup.

All physicians have patients with loud cardiac murmurs who live to a ripe old age; others with myocardial degeneration who show little evidence of muscle change, and still others with normal pulse rates, who present little suggesting cardiac injury but who later prove to have been severely hit. What one sees or hears alone, therefore, may not reveal the true status of heart muscle efficiency or explain all about cardiac disease. Muscle weakness is the most common of heart defects, and valvular leaks the most rare.

Although one may not feel that all heart muscle change is myocarditis, there is, nevertheless, no organ of the body more in physiologic sympathy with toxic absorption and bacterial invasion than the heart. The fact that the myocardium may ward off serious bacterial injury and may recover from every toxic strain, if given a fair chance, does not prove that the muscle has not been involved or should not be most carefully guarded for weeks and months after the febrile stage has subsided.

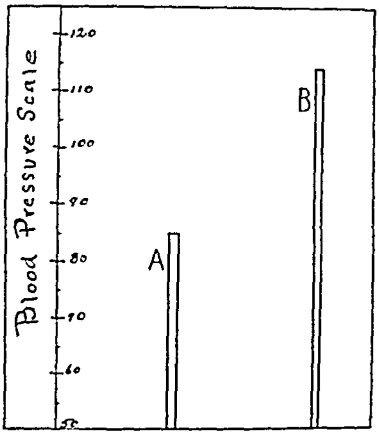

Fig. 2.—The average type of blood pressure after treatment in three cases of postfebrile cardiovascular disturbance in grippal infections: *A*, diastolic pressure, better supported or better tone; *B*, systolic pressure, better supported or better tone.

REPORT OF CASES

A typical case is taken from each of the three principal groups:

1. A patient who was acutely ill for four or five days and got up without return of fever.
2. A patient who was acutely ill for three or four days, got up, and the fever returned. He was in bed three or four days a second time.
3. A patient who was acutely ill for five or six days, got up, returned to work and forced herself along for two months, when her condition was diagnosed as nervous breakdown and she was sent home; as she still did not improve, she came to the seashore.

Case 1.—A. B., a white man, aged 38, the office manager of a manufacturing concern, complained of great physical weakness following the slightest effort and of loss of pep. The family history was irrelevant. He had always considered himself physically fit. He had played golf and had gone on long trips in the mountains, without fatigue. The present illness began rather suddenly, four weeks before, with aching pains and chilly and cold sensations, followed by perspiration. The temperature was 103 F., the pulse 76, and respiration 17. There was no cough or any upset of the gastro-intestinal tract. After the patient had been in bed four days, with temperature ranging from 101 to 103 F., he perspired profusely and the temperature became normal. He got up the following day and came to the seashore. He kept out in the open, walked, went to shows and window shopped but did not improve.

On physical examination the patient appeared well nourished and did not look ill; the face and skin showed good color, but the whole superficial circulation was dilated and of poor vasomotor tone. The chief interest centered about the heart, which was not enlarged; the sounds were sluggish and distant; the pulse was 70 and was regular in rate and rhythm. The blood pressure was 115 systolic and 90 diastolic but was poorly supported, as in pulsus alternans. After hopping on one foot thirty times, the patient became very tired and short of breath. The blood pressure was 120 systolic and 85 diastolic, which is not a normal response.

Treatment consisted of limiting the patient's activities to the lobbies and porches of the hotel; rest in the afternoon, and tonic doses of digitalis and nux vomica to tone up the heart muscle. One week later, the blood pressure was about the same but was better supported, and the heart tone was much improved. After another week the patient felt fine.

CASE 2.—R. S., a white youth, aged 18, a college student, a member of the tennis and ball teams complained of a mean, tired feeling and inability to do anything without becoming short of breath. The family history was unimportant. An appendectomy had been done a year previously with good results. The patient had always been active at college in tennis and ball games; he took the physical examination on entrance to college and was pronounced quite fit.

Five weeks before there had been a sudden onset of aching all over. At that time the temperature was 103.2 F., the pulse rate 78 and the respiratory rate 20; there was no cough or intestinal upset. After the patient had remained in bed for three days, with temperature ranging from 100 to 103, he perspired freely and the temperature became normal. After he had been up for twenty-four hours, the fever returned, and he was in bed three more days. He went home for a week to get away from work but did not gain. He still felt mean and weak, came to the seashore and. was out every day but did not improve.

The patient appeared well nourished. He did not look very ill. The skin was warm, with superficial circulation dilated and of poor vasomotor tone. The heart was not enlarged, but the sounds were distant and the long pause was shortened; there were no murmurs; the pulse was 76, and regular in rate and rhythm. The blood pressure, which was 105 systolic and 78 diastolic, was poorly supported. The patient hopped on one foot thirty-five times and became quite tired and short of breath. The blood pressure was then 115 systolic and 80 diastolic.

After treatment consisting of restricted exercise, tonic doses of digitalis and nux vomica for one week, the patient felt much better. The blood pressure was 110 systolic and 80 diastolic and of better tone and support. Two weeks later the patient felt fine and went back to school.

CASE 3.—A. T., a white woman, aged 38, a school teacher, complained of great weakness and inability to walk to and from school as she had done previously. The family history was irrelevant.

She had always been well and strong and had walked a mile to and from school each day for years.

The present illness began four months before with acute grip; the patient had ached all over and had a dry nonproductive cough. The temperature was 103.5 F., the pulse rate 80 and the respiratory rate 19. She had been in bed six days, with temperature from 100 to 102.5, she perspired freely and the temperature became normal. One day later she went back to school but had to force herself along after two months. The school physician said that she had a nervous breakdown and sent her home. She was at home for several weeks but did not gain and came to the seashore. She was out in the open all the time but had no strength and did not improve.

On physical examination the patient appeared nervous and weak, but she did not look very ill though she said that she had no strength and could not walk much. The chief interest was the heart and circulation. The heart was not enlarged, but the sounds were faint and "tic tac" in quality; the pulse was 82, regular in rate and rhythm. The blood pressure was 110 systolic and 90 diastolic and very poorly supported.

The patient danced about the office for two minutes and had to stop. The blood pressure did not rise but remained about the same; the pulse rate was 112. She felt very tired after ten more minutes.

Under treatment consisting of rest in bed for three days, then about the hotel and porch, and tonic doses of digitalis and nux vomica three times a day, the patient improved rapidly. Two weeks later she went home, but not to work till two more weeks. When seen one year later, she was quite all right. At that time the blood pressure was 120 systolic and 80 diastolic.

CONCLUSIONS

1. Grip is regarded by many physicians as a systemic cold, and patients are allowed to get up much too soon.
2. Unless outspoken murmurs are present, heart enlargement is demonstrable, edema persists, or changes in the electrocardiogram are found, the heart is pronounced normal.
3. Myocardial weakness is the most common of heart defects and organic leaks of the valves are the most rare.
4. Even the mild forms of grip offer potential possibilities of myocardial disease and show evidences of lingering infection in the body tissues.
5. The most effective treatment that I have found consists of rest and tonic doses of digitalis and nux vomica (not with the idea of digitalization) to tone up the heart muscle and vasomotor system.

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ABSTRACT OF DISCUSSION

DR. W. S. THAYER, Baltimore: If one considers the results of recent investigations, one must assume that, whatever the infectious agent may be, the virus is probably filtrable. What the organisms are may be unknown, but certain things are known about their clinical effects. The immediate symptoms of the infection last, for instance, apparently a short time; the primary symptoms of influenza or of a bad cold are of but a few days' duration—the "three days' fever," as influenza was called at the outset in the American Expeditionary Forces. After this the patient often recovers with little appreciable after-effect. On the other hand commonly, after several days, when he thinks himself well, he breaks down again, is febrile and manifests the symptoms of secondary infections of all sorts, which in the graver epidemics are usually due to infections with a malignant streptococcus. In other words, a bad cold, or whatever one calls it, or an attack of "grip," seems to diminish the resistance of the individual in a remarkable way, and this diminution of resistance is shown in grave secondary infections, commonly in the sinuses or lungs, but in a surprising number of instances, in the heart. When one looks back over a large number of instances of subacute streptococcal endocarditis, it is rather remarkable how often those symptoms are traced to an ordinary infection of the upper respiratory tract. But more than that, we are perfectly familiar, as Dr. Andrews has set forth clearly, with the rather striking debility, physical and nervous, which sometimes follows apparently mild infections of the upper respiratory tract, and often the more severe ones. To come more specifically to the heart, one of the commonest experiences in the life of a physician is to observe the following course of events in one of his patients with old rheumatic heart disease, or in an individual with a serious myocardial change, who is going along on an even keel, and has been going along on an even keel for a long time: The patient has an infection of the upper respiratory tract which may not seem to be grave, and compensation is immediately upset. One is apt to fancy that the bronchitis and pulmonary congestion are responsible, but the failure of compensation that one sees after relatively mild infections of the upper respiratory tract is often striking. What the average results of a bad cold or of an attack of grip are is unknown because, ordinarily, little attention is paid to them. I am reminded in this connection of the significant observations made in convalescent camp 2 during the war, by Dr. Bridgeman, who showed, among other things, that in a considerable number of cases the average length of time that it took for a boy of fighting age in good condition to get back into class A after an ordinary attack of tonsillitis, with or without sinusitis, was about a month. How many people take three weeks' vacation after an attack of tonsillitis? Yet it is quite clear that from an economic standpoint, the average man should do so.

DR. THOMAS MCCRAE, Philadelphia: During the past winter, what was called influenza was supposed to be prevalent in many parts of the country. For example, in Philadelphia, morbidity returns showed a large number of cases labeled influenza and a considerable number of deaths were considered the result of influenza. In a fairly large medical service during the winter I did not see a case which I felt could be called influenza. An inquiry came from the health department as to why we were not reporting our cases of influenza, to which the answer was sent back that we did not have any such cases. A great many cases were sent in with that diagnosis, but on study a majority proved to be streptococcic infections and a certain number pneumococcic infections of the upper respiratory tract. How much of secondary infection is due to the streptococcus I do not think any of us know as yet. My suggestion would be that the majority of these cases are instances of infection of the upper respiratory tract, some caused by the streptococcus, some by the pneumococcus, and some possibly by both. What happened in these patients? Had they definitely cardiac damage? Were they patients who possibly had had a chronic focus of infection and in whom the acute infection was enough to make material difference for the time being; or how much may have been due to vasomotor disturbance? My feeling would be that the condition is probably caused by a combination of these two factors, with vasomotor disturbance perhaps playing a considerable part. I think we would all agree with Dr. Thayer that the lesson to remember is that acute infections of the upper respiratory tract may be a comparatively serious matter, and that a period of rest afterward is essential. We know how difficult it sometimes is to secure that rest, but we ought to be certain that these patients are back to a reasonable normal before we permit them to get out of bed.

Dr. L. G. Rowntree, Rochester, Minn.: There are various groups at work in this country investigating the nature of the common cold. It seems to me that this is one of the points of attack on this problem, because it is difficult to say what is a common cold and what is influenza. I wish to emphasize the importance of influenza and of the common cold in relation to disease in general. This might best be emphasized by specific instances. A father said to me, "Why is it that I who have had gallstones, have an attack of jaundice, and my son, who has nephritis, has an attack of interstitial nephritis, after colds?" Colds are responsible for exacerbation of preexisting disease, whenever they are found in the body very frequently. On the other hand, they may initiate disease just as frequently. When the disease does not localize in an individual organ it may attack the body as a whole—and I am inclined to feel that the illness of Dr. Andrews' patients was of the body and the mind, in many instances, as well as of the heart. The question arises as to what should be considered an indication of trouble. Dr. Thayer's suggestion as to prolonged rest is an excellent one, but I do not believe that it will be followed generally. If, however, one recognizes exhaustion following cold as of equal importance with organic disease and then applies Dr. Thayer's rest remedy, I believe that it would save an infinite number of patients from an infinite amount of illness. This exhaustion may go on, literally for years in many cases, and it may incapacitate the patient sometimes for a year, sometimes for life. Hence it is a serious problem. I should like to ask Dr. Andrews one question. These patients have gone to the seashore. Is not the seashore environment an important factor in the recoveries reported, as well as the rest, the massage and the drugs employed?

Dr. Moses Salzer, Cincinnati: I should like to ask the author what he means by tonic doses of digitalis.

Dr. F. R. Taylor, High Point, N. C.: It has been stated that some of these cases of so-called influenza have been found to be streptococcic or pneumococcic infections, and I am eager to know how that determination is arrived at. I have always assumed that one might find streptococci or pneumococci in the upper respiratory tract in any one. I should like to know how to determine whether the infection is due to these organisms which one finds or to infectious agents which Dr. Thayer has spoken of, which one cannot find.

Dr. F. C. Atwood, New Haven, Conn.: I should like to ask Dr. Andrews whether he has had any experience in the use of a convalescent serum in the treatment of influenza.

Dr. Clarence L. Andrews, Atlantic City, N. J.: My cases were based on a group of patients whom I saw never earlier than two weeks following their illness. They were sent to the seashore because they did not gain at home. I tried to check the etiologic factors, but the data varied so much that they were discarded. If you recall what I said, none of the patients showed any of the usual evidences of cardiac disease or any etiologic factors except a history of so-called grip. I emphasized grip rather than influenza because of the uncertainty of what causes it. I merely used the term that every one else uses. I do not know myself what causes it; and so far as I know, no one else does. My idea in presenting the paper was not so much to point out the cause of grip as to emphasize the cardiac disturbances which follow these mild types. The same group of physicians would probably regard them as unimportant even if streptococcic in character. What I wish every one to do is to watch the cardiovascular system. I do not know whether the condition is caused by myocardial or vasomotor disturbances, by a depression of the suprarenal balance or by a combination of all three. I believe that there is a big nervous "let down" or, as Dr. McCrae said, a combination of everything. Answering Dr. Salzer regarding digitalis, I do not use a specific dose but just enough to tone up the muscle. All know what a poorly toned muscle is like; it cannot hold itself. I rarely give more than 10 drops and never with the idea of digitalization. Dr. Rowntree mentioned the great importance of finding the cause; but, as previously stated, I saw these cases too late for that. All these patients do well at the seashore, if they do not overexert themselves. The question of Dr. Taylor is really the question of Dr. McCrae; that is, how to determine whether the infecting organisms are streptococci or pneumococci. Of course, my paper did not deal with the causes. Answering Dr. Atwood, I have had no experience in the use of a convalescent serum in the treatment of influenza.

EXPERIMENTAL SHOCK

A STUDY OF ITS PRODUCTION AND TREATMENT *

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A great deal of confusion has arisen from the use of the term "shock." Conditions that are probably little related to one another are classified together under this general heading. Several recent workers have suggested other terms in an endeavor to lessen the misunderstanding. Until the factors that are responsible for the decline in the volume of circulating blood and the drop in the blood pressure are better understood, it would probably be advisable to designate the initiating agent as, for example, shock following trauma to an extremity, shock following burns, or shock following injury to the central nervous system.

Shock resulting from injury may be roughly divided into two types: (1) primary shock, in which a low blood pressure follows immediately, and (2) secondary shock, in which at least an hour usually elapses between the time of injury and the development of a low blood pressure. It is the latter type with which surgeons are most frequently confronted, and this paper is limited to a consideration of it. Many theories have been offered in an effort to explain the mechanism of the production of secondary shock. These include the theories of (1) vasomotor exhaustion, (2) inhibition, (3) fat embolism, (4) acidosis, (5) acapnia, (6) suprarenal hyperactivity and hypo-activity, and (7) toxemia. Probably the theory with the largest number of supporters at the present time is the last one mentioned, which maintains that the decrease in the blood volume and the decline in the blood pressure following injury to large areas of tissue are due to the absorption of toxins into the general circulation. These toxic products are thought to be similar to histamine in their actions.

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* From the Department of Surgery of Vanderbilt University School of Medicine.

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The experiments that probably gave the strongest support to the toxic theory of shock were those performed by Cannon and Bayliss,[1] in which one of the posterior extremities of cats was traumatized by striking. An hour or more following the injury, the blood pressure declined to a low level. Amputation of the two posterior extremities by symmetrical cuts made across the upper thighs and determination of the difference in weight indicated that there was not a sufficient loss of fluid from the blood stream into the injured area to cause the decline in the blood pressure. Section of the upper lumbar cord in some experiments showed that the fall in blood pressure was not due to a general effect of the trauma on the circulation brought about by nervous impulses. Since the femur was not broken, fatty embolism seemed unlikely. It was believed that the continued fall in blood pressure following the trauma was due to the absorption of depressant substances.

MECHANISM OF PRODUCTION

The results of experiments that were performed in studying shock by other methods suggested that the experiments just quoted might have been wrongly interpreted. In the first type of experiments, performed by Blalock and Bradburn,[2] the oxygen content of the blood from various veins of the body was determined after a low blood pressure had been produced by a variety of means. The oxygen content of the blood from the femoral vein of a traumatized extremity was much higher than was that of the opposite nontraumatized extremity. The oxygen content of blood from the portal vein was much higher after a low blood pressure had been produced by trauma to the intestines than after a proportionate decline in blood pressure had been obtained by other methods. The alterations that were produced by trauma and by the injection of histamine were quite different. In the second type of experiments, the cardiac output and blood pressure were determined before, during and after the production of a low blood pressure by (1) hemorrhage, (2) trauma to an extremity, (3) trauma to the intestines, (4) burns and (5) the subcutaneous injection of histamine. In the experiments on hemorrhage and on the various types of injury there was a rather large decrease in the output of the heart before any significant alteration in the blood pressure occurred. When histamine was injected, the alterations appeared in the reverse order, there being first a decrease in the blood pressure followed later by a decline in the output of the heart. In these and in all experiments to be reported in this paper, the animals were profoundly anesthetized, usually by soluble barbital, and they did not give any evidence of pain during the experiments. At the completion of the experiments they were killed.

In view of the results that have just been reported, experiments were then performed on dogs by the use of the method of Cannon and Bayliss. Eight such experiments were performed. The trauma was instituted by striking one of the posterior extremities. It was evident that the loss of fluid was not limited solely to the area directly traumatized, as there was swelling of the loose tissues in the groin and flank. After intervals of time following the trauma, varying from one to six and one-half hours, there was a decline in the blood pressure to a low level. The method of determining the amount of fluid that was lost into the traumatized area was different from that described by Cannon and Bayliss in that the amputations were performed at higher levels. The method briefly was as follows: A midline abdominal incision was made, the symphysis pubis was divided with a saw, the bladder and rectum were removed, the abdominal aorta and vena cava were doubly ligated and divided, a high transverse abdominal incision was made extending across the vertebral column, the posterior portion of the body was divided into two parts by a longitudinal section of the vertebral column, the tail was discarded, and the weights of the two posterior portions were determined. The average difference in weight of the traumatized and nontraumatized parts equaled 5.2 per cent of the body weight. In other experiments in which the tolerance to graded hemorrhages was determined, the results indicated that the loss of blood into the injured extremities had been sufficient to account for the decline in the blood pressure.

In an effort to eliminate the possibility of the absorption of toxic products from the traumatized extremity, experiments of a slightly different nature were performed. The femoral artery was isolated in the groin, the head of the femur was removed, and a tourniquet was placed tightly around the thigh, constricting all structures except the artery, which was left outside the tourniquet. The extremity was then traumatized distal to the constriction. The impression was gained that less trauma was necessary for the production of a low blood pressure in these experiments than in those in which no tourniquet was applied. The difference in the weights of the two extremities showed that there was sufficient hemorrhage into the injured area to cause the decline in the blood pressure.

Other types of injuries were then studied. These included (1) mild trauma to an extremity, (2) trauma to the intestines and (3) burns. Following mild trauma to an extremity, there is an accumulation of fluid in the injured tissues. When the intestines are passed continuously between the fingers, a copious weeping of fluid from the peritoneal surfaces results. Dogs do not blister when burned, but a great deal of fluid escapes into the subcutaneous tissues beneath the burned skin. The composition of the fluid that escaped from the blood stream, after these three types of injury, was determined. It was found that the fluid had almost exactly the same composition as the plasma of the blood. It is especially significant that the protein content of the two was practically identical. This is important because it is the protein of the plasma that is largely responsible for maintaining the osmotic pressure in the blood stream. Without it the filtration pressure in the capillaries would cause the loss of most of the fluid from the blood stream and no fluid would be attracted to it.

The experiments on mild trauma to an extremity were performed because those on severe trauma were probably not of sufficient duration to take into account the possible late action of protein decomposition products that are slow in exerting their effects. One cannot be certain that these experiments were of sufficient duration (average, thirty-two hours and sixteen minutes), but the length was limited by the fact that the animals were deeply anesthetized and would have died eventually from the anesthetic alone. After the blood pressure had declined to a low level, the difference in weight of the two posterior extremities was determined by the same method as was used in the experiments on severe trauma. The average difference amounted to 3.66 per cent of the body weight. As has been stated, the fluid that escaped into the injured part had in the main the same composition as the blood plasma. Experiments were then performed on the graded removal of blood plasma, in which the loss that produced death was determined. The results indicated that the loss of plasma into the injured area following mild trauma to an extremity had been responsible for the decline in blood pressure.

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[1] Cannon, W. B., and Bayliss, W. M.: Note on Muscle Injury in Relation to Shock, Nat. Health Insur., Med. Research Com., Spec. Rep. Ser. no. 26: 19-23 (March) 1919.

[2] Blalock, Alfred; and Bradburn, Hubert: Distribution of the Blood in Shock: The Oxygen Content of the Venous Blood from Different Localities in Shock Produced by Hemorrhage, by Histamine and by Trauma, Arch. Surg. 20: 26-38 (Jan.) 1930.

In the experiments on trauma to the intestines, the amount of fluid that escaped through the exposed and injured peritoneal surfaces as well as the excess of blood that accumulated in the traumatized intestines was roughly determined. Comparison of these results with those obtained in plasmapheresis experiments of approximately the same duration indicated that the loss of plasma from the circulating blood stream had been responsible for the decline in the blood pressure. We do not mean to imply that the temporary decline in blood pressure that is frequently encountered in abdominal operations is usually due to the loss of fluid through the exposed peritoneum. This condition is probably more closely related to primary shock, in which there is a decrease in the circulating blood volume due to the passage of blood into large areas of dilated capillaries.

In animals that were very deeply anesthetized by soluble barbital, the amount of plasma lost into a burned area that was restricted to one side of the body was determined by dividing the body into symmetrical halves and weighing them. Comparison of the results of these experiments with those obtained in studying the effects of plasmapheresis indicated that the loss of plasma had been sufficient to account for the decline in blood pressure. Most of these experiments were less than twenty-four hours in duration. In view of the results of these experiments, it seems possible that the early beneficial effects following the use of tannic acid and epinephrine in treating burns may be due to the lessening of the loss of fluid from the weeping surface rather than to the prevention of the absorption of toxins. It seems likely that deaths occuring within twenty-four hours following a burn are due in the main to the loss of plasma through the injured capillaries. In burns associated with longer survival periods, toxins probably exert their effects.

Experiments by Harris and Blalock[3] showed that there is an increase in the water content of the tissues at the site of injury and a decrease elsewhere. After trauma to an extremity there is an increase in the water content of muscle in the injured area and there is a decrease in the water content of skeletal muscle in other parts of the body. There is an increase in the water content of the subcutaneous tissues of a burned area, and the subcutaneous tissues elsewhere lose water.

The observations recorded thus far indicate that the local loss of fluid at the site of injury is the most important factor in producing the decline in blood volume and blood pressure in shock. Evidence for the action of toxins was not found in these experiments. Following severe trauma, the fluid that was lost consisted in the main of whole blood. When the injury was less severe, the fluid that escaped through the damaged capillaries had approximately the same composition as the plasma of the blood.

TREATMENT

There are two methods by which the low blood pressure in shock may be elevated: the giving of vasoconstrictor drugs and the addition of fluids to the circulating blood stream.

The Giving of Vasoconstrictor Drugs.—If we limit our consideration to the shock that develops following trauma and remember that the blood pressure is low because there is a decrease in the blood volume, treatment that is not directed toward increasing the blood volume does not seem correct. The blood supply to organs is already lessened because of the decrease in the circulating volume of blood and the vasoconstriction that is usually present, and further vasoconstriction that follows the giving of drugs decreases still more the total blood flow to organs, even though the blood pressure is raised. The increase in blood pressure that follows the injection of a vasoconstrictor drug is usually sustained for only a short time. It is well to remember that the repeated injections of large amounts of epinephrine will produce shock in previously normal dogs.

The Addition of Fluids to the Circulating Blood Stream.—Since there is a diminution in the volume of blood in the circulation in shock, treatment should be directed toward increasing this amount. For this purpose, blood and so-called substitutes for blood have been employed. The results following the use of most of the substitutes have not been very encouraging. Theoretically, a solution of acacia should most nearly fulfil the conditions, but there are some objections to its use.

The fluid that has probably been used more frequently than any other in treating shock is physiologic solution of sodium chloride. It has been known for a long time that salt solutions as well as other crystalloids do not remain in the blood stream even of normal dogs very long after their injection. This information has explained, in part at least, the fact that favorable responses in the blood pressure frequently do not follow the intravenous injection of salt solution. We have the impression that at times in patients with low blood pressures the condition is actually worse a short time following the introduction of the fluid than it was before. Studies were carried out in an attempt to obtain more information on the cause of failures. The effects of various other solutions were studied but, because of lack of space, only isotonic saline solution will be considered here.

The type of injury that was chosen for these experiments was that of trauma to the intestines. When the intestines are continuously passed between the fingers and no fluid is introduced intravenously, since the fluid that is lost through the exposed peritoneum has the same composition as the plasma of the blood stream, there is practically no alteration in the amount of protein in a unit volume of plasma. However, there is a large decrease in the total amount of plasma in the blood stream and hence a great diminution in the entire amount of protein. When isotonic salt solution is injected continuously intravenously while the intestines are being traumatized, there is a decrease in the total amount of plasma and at the same time a decrease in the percentage of protein in a unit volume of plasma. In other words, the injected salt solution, as it escapes, takes protein with it, resulting in a dilution of the protein in the fluid that remains in the blood stream. This, of course, decreases the ability of the blood stream to increase its volume, by attracting fluid to it because of the diminution in the osmotic pressure.

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[3] Harris, P. N., and Blalock, Alfred: Experimental Shock: X. Observations on the Water Content of the Tissues of the Body After Trauma and After Hemorrhage, Arch. Surg. **22**: 638-648 (April) 1931.

We were then interested in determining the effects in normal dogs, anesthetized by morphine, of the intravenous injection of large amounts of physiologic solution of sodium chloride. The fluid was injected continuously intravenously for four hours at the rate of 10 cc. per kilogram of body weight per hour. Studies were performed before, during and after the injection of the fluid. In the animals in which there was no decline in the blood pressure at any time during the experiments, there was a slight increase in the entire amount of plasma, a slight decrease in the percentage of protein and no alteration in the entire amount of protein in the blood stream. On the contrary, when at any time during the course of an experiment the blood pressure declined, owing to the anesthetic or unknown cause, a rapid loss of protein from the blood stream was found. Hence one sees in the presence of a low blood pressure that the capillaries allow the escape of protein even when there has been no gross injury to the vessels.

When whole blood or blood serum is injected intravenously in the presence of a low blood pressure resulting either from trauma or from an unknown cause, protein is lost through the capillary walls. But protein is being added to the circulation in the blood that is being injected, and this compensates at least partially for the amount that is being lost.

Vanderbilt University Hospital.

ABSTRACT OF DISCUSSION

Dr. Jacob Markowitz, Washington, D. C.: Cannon and Bayliss are eminent names in physiology. As a teacher of physiology I have been teaching that surgical shock is the result of a toxin which is liberated in traumatized tissues. I was therefore surprised and pleased to hear that this conclusion of Cannon and Bayliss is erroneous. I say pleased because these experiments are much simpler, and, other things being equal, simple explanations are more apt to be true. It is a fact that the injection of histamine will induce a condition which is very similar to surgical shock, and it is a fact that there is present in the animal body a good deal of histamine. Any one who has worked with shock in animals soon realizes that histamine as such could not be responsible for surgical shock, for a simple reason. Herbivorous animals do not react to an intravenous injection of histamine by a fall in blood pressure, and herbivorous animals in general are notoriously prone to the development of shock. The tendency has been to look on the condition of shock in more or less of a diagnostic sense. No one would suppose that to call the patient collapsed would be making a diagnosis. There is no more reason, I suppose, to call "shock" a diagnosis. While every one who has written on the subject has urged that the word "shock" be abandoned for medical literature, it still persists. I should like to suggest instead of the word "shock" that one use the term "collapse with hypotension." It is true that these terms do not indicate all the features of shock, but in my opinion they are better than the word "shock." The number of papers on the subject of shock is legion. Many of them are profound and many contain nothing. It is my belief that this discussion of Dr. Blalock and his collaborators will stand the test of time.

Dr. Frederick A. Bothe, Philadelphia: Three observations which the authors made were of utmost importance: First, there was an increase in the fluid content of the injured area. The fluid, on analysis, was chemically the same as blood plasma. Second, the results obtained in experimental trauma indicated that the loss of plasma into the injured area was responsible for the decline in blood pressure. Third, if during an experiment the blood pressure declined because of the anesthetic or an unknown cause, a rapid loss of protein from the blood stream occurred. This showed an altered permeability of the capillaries in the presence of a low blood pressure, though there was no gross injury to the vessels. Adolph recently found an increase in the water content of the tissues as the result of low blood pressure in the absence of trauma. From these observations the question arises, Does the low blood pressure precede the escape of the plasma, or does some plasma escape before the blood pressure is altered? What part the sympathetic nervous system plays in the fall of the blood pressure is still unknown. The results obtained by operations on the sympathetic nervous system in the treatment of vascular diseases of the extremities has stimulated further study of the function of this system. Ferguson and North are at present conducting research work in the Department of Research Surgery of the University of Pennsylvania, which may help in the solution of this problem. Though their work is not completed, they observed that, if the splanchnic nerves alone are paralyzed, a momentary slight drop in blood pressure occurs, which is so rapidly compensated that it is practically negligible. If the splanchnic and the sympathetic nerves to the lower extremities are paralyzed there is a fall in the systolic pressure averaging about 12 mm. of mercury. If in addition the sympathetic nerves above the fifth thoracic nerve are paralyzed, the blood pressure falls proportionately to the number of sympathetic nerves paralyzed. These observations indicate that paralysis of the splanchnic nerves alone is not responsible for "splanchnic shock." In more profound cases blood transfusion is the best therapeutic agent to supply the constituents necessary to combat this reaction, as manifested by the physiologic changes.

Dr. Alfred Blalock, Nashville, Tenn.: The fact that not every decline in blood pressure is due to the loss of fluid through the walls of the capillaries should be emphasized. Surgeons note that the opening of the peritoneal cavity frequently causes a drop in the blood pressure. This condition probably is closely related to what is termed primary shock in which there is "bleeding" into the capillaries themselves, resulting in a diminution in the circulating volume of blood. In view of the results that were obtained in the experiments in which fluids were injected intravenously, the question arises as to how a patient who has a low blood pressure should be treated. I think in the absence of the ability to obtain a donor that solutions of sodium chloride or dextrose should be introduced but that the injection should be terminated if there is not an early favorable response in the blood pressure. Otherwise, it is believed that the continued introduction of fluid will result in a great diminution in the amount of protein in the blood stream and that the chances of recovery will be lessened. Further work should be directed toward finding something that will decrease the permeability of the capillaries. Unless such attempts are productive there will continue to be many patients in shock who are unsuccessfully treated.

Undulant Fever in Children.—. . . The surprising thing, however, is that the incidence of undulant fever among people drinking infected milk is comparatively low. As investigation proceeds, it is becoming apparent *either that the* bovine strain of Brucella melitensis is of relatively low pathogenicity for human beings, or that there are other factors of immunity responsible for the low incidence of the disease among those exposed. It has been repeatedly stated by those who have described undulant fever, fostered undoubtedly by those who have previously described Malta fever of caprine origin, that the disease is of rare occurrence in childhood and therefore of little importance in this age group. While it is true that the majority of cases which have been reported have occurred in adults, one is hardly justified, in the present state of knowledge, in accepting this conclusion. Children are not immune, and the disease has been observed during the febrile stage even in infancy. We should like to add three cases occurring in children to those already on record. We do not, of course, presume to draw any conclusions concerning undulant fever from so small a series. There is much that is still unknown concerning the relation of infectious abortion in cattle to undulant fever in man. It is not impossible that unrecognized infections in childhood may be one factor in accounting for the relatively high immunity to the disease in adults.—Anderson, E. D., and Pohl, J. F.: Undulant Fever in Children, *Am. J. Dis. Child.* **42:**1103 (Nov.) 1931.

Clinical Notes, Suggestions, and New Instruments

AGE INCIDENCE OF CARCINOMA OF THE CERVIX

TWO THOUSAND, ONE HUNDRED AND EIGHTY-ONE CONSECUTIVE CASES AT THE HOWARD A. KELLY HOSPITAL

Edwin F. Daily, M.D., Baltimore

A question frequently asked in recent years has been "Is carcinoma of the cervix occurring in younger women more often than it did a few decades ago?"

A careful tabulation of 2,181 consecutive cases of squamous cell carcinoma has been made (table 1). The cases have been grouped into yearly divisions from 1913 to 1931, and the percentage of occurrence for each ten years of life and the average age of occurrence for the entire group have been computed. The ages given are the ones at the time the diagnosis was made. The onset of the first symptoms was computed to be on the average 9.3 months earlier. The average age of onset then would be 47.39 years, and the age at the time of diagnosis 48.16 years. The youngest patient in this series was 22 years, the oldest 83 years, of age.

For comparison, Pozzi's statistics as published in his "Treatise on Gynecology," 1891, are used (table 2). In a series of 3,471 cases the average age of onset for his patients was 48.2 years. This is practically the same as in our cases. The average age incidence of cases for each ten years span of life is also practically the same in his series as in ours.

Table 1.—*Age Incidence of Squamous Cell Carcinoma of the Cervix at the Howard A. Kelly Hospital*

			Age													
			20 to 30		30 to 40		40 to 50		50 to 60		60 to 70		70 to 80		80 to 90	
Year	Number of Cases	Average Age per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total	2,181	48.16	73	3.34	404	18.5	718	32.9	620	28.5	310	14.3	53	2.44	4	0.18
1913	41	48.6	1	2.4	7	17.0	16	39.0	10	24.0	6	14.5	1	2.4	0	0.0
1914	115	50.2	1	0.87	15	13.0	31	29.5	46	39.8	17	14.8	2	0.74	0	0 0
1915	85	51.1	1	1.18	11	12.95	24	28.5	31	36.5	15	17.65	3	3.53	0	0.0
1916	103	47.5	3	2.9	28	27.2	28	27.2	27	26.2	13	12.6	4	3.88	0	0.0
1917	73	48.4	0	0.0	9	12.3	34	46.6	18	24.6	9	12.3	3	4.1	0	0.0
1918	104	49.6	3	2.89	17	16.35	36	34.4	25	21.0	19	18.3	4	3.85	0	0.0
1919	164	49.3	4	2.44	25	15.2	53	32.3	55	33.5	25	15.2	2	1.22	0	0 0
1920	158	47.9	4	2.53	32	20 3	52	32.9	43	27.2	25	15.8	2	1.27	0	0.0
1921	135	49.1	1	0.74	42	31.1	48	35.5	20	14.8	22	16.3	2	1.48	0	0.0
1922	108	48.9	2	1.85	16	14.8	37	34.2	38	35.2	11	10.2	4	3.7	0	0 0
1923	130	49.7	1	0.75	28	21.5	46	35.5	34	26.0	18	13.8	3	2.3	0	0.0
1924	97	46.1	6	6.2	18	18.5	27	27.8	29	29.9	12	12.4	5	5.1	0	0.0
1925	132	47.8	5	3.8	23	17.4	47	35.5	35	26.5	19	14.7	3	2.2	0	0.0
1926	115	47.9	7	6.1	18	15.6	40	34.7	28	24.3	20	17.4	1	0.87	1	0.87
1927	142	48.1	9	6.3	23	16.2	43	30.3	47	33.1	18	12.1	2	1.4	0	0.0
1928	130	49.3	4	3.8	19	14.6	45	34.6	36	27.7	24	18.5	2	1.5	0	0.0
1929	124	47.3	9	7.3	25	20.2	36	28.8	38	30.7	12	9.7	4	3.2	1	0.8
1930	132	47.8	6	4.5	25	18.9	41	31.0	44	33.3	12	9.1	2	1.5	2	1.5
1931	93	46.5	6	6.4	23	24.7	31	33.3	16	17.2	13	14.0	4	4.3	0	0.0

Of interest in table 1 is the fact that for the past seven years the average number of cases between the ages of 20 and 30 is above the average for the whole series at this age. We have no explanation to make for this, but it has been the impression of those seeing many of these cases each year that the disease is now occurring in younger women more often.

Table 2.—*Age at Which Cancerous Disease of the Cervix Begins**

Age	Number of Cases	Percentage
17 years	1	0.026
19 years	1	0.026
20 to 30 years	114	3.3
30 to 40 years	770	22.2
40 to 50 years	1,196	34.2
50 to 60 years	856	24.6
60 to 70 years	340	9.8
70 years	193	5.5
Total	3,471	

* Average age incidence equals 48.2 years.

CONCLUSIONS

The average age incidence of cancer of the cervix has not changed in the last fifty years.

At this clinic there has been a very slight increase in the incidence of occurrence between the ages of 20 and 30 during the last few years. Although cancer of the cervix is chiefly a condition of middle life, its occurrence in younger women must always be kept in mind, especially by the general practitioner when he faces a differential diagnosis of cervical disease.

1418 Eutaw Place.

Committee on Foods

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

OVALTINE NOT ACCEPTABLE

A Chocolate Flavored Dry Malt Extract Containing a Small Quantity of Dried Milk and Egg

Ovaltine, widely known throughout the world because of extensive advertising, is sold with two slogans: "A food beverage" and "A food concentrate." Because of its extensive exploitation, because it is stated to be widely recommended by physicians as a building and strengthening food in convalescent and other invalid conditions, because of the special stress placed on it as a means of inducing calm, natural sleep without the use of drugs, and because recent advertising has emphasized the alleged vitamin and diastase content, the Committee on Foods thought it desirable to consider the nature of the product and the claims made for it even though this preparation has not been voluntarily submitted to the committee.

Ovaltine as sold in the United States is manufactured by the Wander Company, Chicago. The Connecticut Experiment Station in 1917 reported its composition as follows:

Bulletin 200, Food Products and Drugs, 1917, page 154: "Ovaltine. Ovaltine, Tonic Foods Beverage. A. Wander, London, England. 'A concentrated extraction from malt, milk and eggs, flavored with cocoa.' 'Is rich in lecithin, the assimilable organic compound of phosphorus. It is thus a valuable article of food in cases of mental and nervous exhaustion.'

Water	1.03
Ash	3.52
Protein (N × 6.25)	12.75
Fat	5.58
Fiber	0.64
Nitrogen-free extract	76.48
Lecithin phosphoric acid	0.10
Reducing sugars (chiefly maltose, lactose, dextrose and dextrins)	70.01
Active amylase	present
Starch	trace
Calories per 100 grams	407

"The product appears to be composed of the foods claimed. The small amount of lecithin phosphoric acid present, 0.10 per cent, hardly seems to justify the claim that the food is 'rich in lecithin' or that it is 'a valuable article of food in cases of mental and nervous exhaustion.'"

In 1927 a supplementary statement said:

"32813. Ovaltine. The Wander Company, Chicago, Illinois.

"Analysis:	per cent
Moisture	1.65
Ash	3.80
Protein (N × 6.25)	13.44
Fiber	0.18
Starch	none
Sugars (as dextrose)	39.53
Undetermined carbohydrate (largely dextrin)	35.32
Fat	6.08

"A product of the same name was analyzed in this laboratory in 1917 in which an active amylase was present and a small amount of lecithin phosphoric acid was found. We have not examined the newer product for amylase or for lecithin phosphoric acid, but otherwise the composition is substantially the same as previously found. The label declaration implies a high vitamin content, but we have made no biological tests for vitamin. The original sample examined was an English product claimed to be made from malt, milk and eggs."

It seemed desirable to compare the diastatic value of Ovaltine to that of U. S. P. Malt Extract:

Diastatic Value.—The method described under "Extract of Malt," page 147 of the U. S. Pharmacopeia, was used to determine qualitatively the diastatic value of a sample of Ovaltine purchased in a drug store in Chicago. The test indicated that active diastase is present in Ovaltine in somewhat less quantity than that of an equal weight of U. S. P. Extract of Malt, which latter is sufficient to convert "five times its weight of starch into water soluble sugars." Therefore, Ovaltine is not equivalent to U. S. P. Malt Extract in its amylolytic properties.

Advertising Claims.—Ovaltine is exploited as a "Swiss food discovery" and "a scientific food concentrate; containing in highly concentrated form practically every single food element necessary to life." It is stated to be "recommended by 20000 physicians the world over . . . for many purposes, both in health and sickness . . . as a building and restorative food for convalescents and invalids; for stomach disorders and feeble digestion, for nervous and rundown conditions; as a means of inducing calm, natural sleep without the use of drugs; for growing children, particularly those under par or underweight; as a pick-up and restorative food drink for busy workers; a food for expectant and nursing mothers to maintain their strength and promote the flow of milk."

It is claimed that Ovaltine "actually makes children want to eat more—and increases the nourishment and digestibility of every bite they take; taken regularly, it usually adds a pound or more a week to a child's weight and has a noticeable effect in curbing nervousness; it (has) solved the problem of feeding invalids . . . and is also solving for modern mothers the problem of child feeding. It constitutes in itself a complete food . . . makes milk digest twice as easily . . . contains 'lecithin' which is a direct nerve food. A few days' use of Ovaltine usually curbs nervousness noticeably. Of greatest importance, Ovaltine contains in high proportion a remarkable food element 'diastase' (A substance which gives one food the power to digest the starch content of other foods in your stomach). It will digest four to five times its own weight of other foods."

DISCUSSION OF ADVERTISING CLAIMS

In advertising appearing in women's periodicals during September, 1931, much emphasis is placed on the Ovaltine oatmeal test. The reader is urged to add three teaspoonfuls of Ovaltine to a cereal dish of cooked warm oatmeal and to see how the Ovaltine digests the starch content, thereby speeding up the digestion and creating a sensation of hunger. Any physician will realize that the test is one of those pseudoscientific demonstrations calculated to confuse rather than to enlighten and leading thereby to unwarranted inferences. Although Ovaltine does contain some active diastase there is little reason to believe that the addition of Ovaltine as a beverage to the diet of a child will hasten the digestion of cereals or induce hunger. Ovaltine does not have the diastase content of U. S. P. malt extract and will not digest four to five times its weight of other foods. Such effect as it has concerns starch digestion only. There is no apparent reason why it should affect to an appreciable extent the digestion of a mixed meal. If there is any evidence that Ovaltine actually does speed up digestion and empty the stomach sooner than usually is the case, that evidence is not available in scientific literature.

The claim that lecithin, which may be considered one of the ingredients of Ovaltine since it is derived from the eggs, is a direct nerve food is about as preposterous as the old claim that fish is to be considered a brain food. The strange notion that any substance taken into the stomach will be selected by the blood and carried directly to the nerves and to the brain, thus giving them the physical properties that they possess, is not substantiated by any physiologic knowledge. True, nerve and brain tissue contain phosphorus, but the feeding of vast amounts of phosphorus will not enhance the functions or the qualities of these highly specialized tissues.

On a par with the claim for lecithin is the one on which so much emphasis is laid in both periodicals and radio advertising for Ovaltine. This drink is urged as a cure for insomnia, as a preparation which induces natural sleep in the most severe cases, as a method to induce restful instant sleep entirely without drugs. The claim is based quite obviously on the well established fact that any warm drink taken before going to bed is an aid to overcoming restlessness. No doubt much of the effect is physiologic, some of it perhaps the same type of physiologic reaction as the general relaxation that accompanies the application of warmth. There is not, however, in Ovaltine any specific sleep-producing principle. It is not to be considered a hypnotic, a narcotic or a sedative, and it will not accomplish for severe cases of nervous diseases or stubborn cases of insomnia what can be accomplished by proper psychologic study, suitable physical therapy, such as a warm bath, or the proper administration of selected medicinal preparations.

Ovaltine may be said to represent an example of the way in which well recognized foods are exploited like "patent medicines" to credulous and ignorant people. Here is the emphasis on impaired digestion, sleeplessness and nerves; here again the pseudoscientific claims; here again the exploitation of a foreign chemist and the mystery associated with the type of advertising that was used to build "Sanatogen," the glorified cottage cheese, into America's most popular nerve tonic more than a decade ago.

To this now is added the claim for vitamin content. The reader is told that Ovaltine has a high content of appetite-producing vitamin B. When another preparation was announced to be fortified with vitamin D, the promoters of Ovaltine immediately assured readers that it contained this interesting substance. Possibly the content of eggs, although low, does provide some vitamin D. Quite likely its content of malt does assure a possible content of vitamin B! But what assurance has the user that the vitamin B that it contains is preserved unchanged? What assurance does he have that the vitamin D that is present is there in such amount as to be of any service whatever?

Ovaltine is advertised as a "quick pick-up" and "for adding five pounds a month to your child's weight." Ovaltine has a food energy value of approximately 120 calories per ounce. The label directions call for the addition of from one to three heaping teaspoonfuls to one glass of milk, which addition is equivalent to from 100 to 150 calories to the 175 calories of the one glass of milk. The food energy value of one glass of Ovaltine in milk prepared according to directions is therefore approximately 1.7 times that of the milk itself. A one ounce slice of bread contains about 75 calories. Ovaltine is essentially a carbohydrate food, and its value in gaining weight is no more nor less than that of other similar carbohydrate mixtures.

There are now available in the open market for those who wish to purchase beverages of this character several products of known composition advertised honestly with claims based on their actual content. In contrast, Ovaltine is sold with grossly exaggerated claims; its composition is kept a mystery, and even if it did contain what the manufacturer says it does, it could not do the things the manufacturer says it will. The exploitation of Ovaltine represents a flagrant abuse of recognized principles in food advertising; it is in many respects not in accord with scientific fact and therefore misleading to the public. For these reasons the Committee on Foods makes available this statement and lists Ovaltine among the products not acceptable.

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SATURDAY, DECEMBER 12, 1931

BLOOD DISTURBANCES AND THROMBOGENESIS FROM CLINICAL INTRAVENOUS INJECTIONS OF DEXTROSE SOLUTIONS

In intravenous medication, more attention is often devoted to the details of technic of the injection than to the changes that may occur in the blood and in important physiologic functions following such administration. Even the apparent benefits of such injections are sometimes attributed to some trivial modification of a technic or to some minor or inconsequential modification of a solution. More important than such technical accessories in the choice of intravenous medication is the fundamental fact that agents, drugs or solutions so injected act as foreign agents in the blood stream. The presence of foreign bodies in the normal circulation, the direct effects on the blood and the indirect or reflex effects on various functions are obviously significant. The fact that the disturbances might be greater and more serious in pathologic conditions, in which intravenous solutions may be indicated, has scarcely received the consideration it deserves. Hence the results with intravenous dextrose solutions on patients reported by Stuber and Lang [1] of the City Hospital in Kiel, Germany, are timely, and worthy of the attention of all physicians who practice such injections.

Using 20 cc. of 20 per cent dextrose solution, Stuber and Lang made observations of changes in the coagulation time, glycolysis, alkali reserve, p_H, and protein and chloride content of the blood of a large number of healthy individuals and of patients with cardiac decompensation. The most notable and constant change was an acceleration of blood coagulation, which was faster in patients with decompensation than in normal individuals. Other noteworthy changes in decompensation were increases in glycolysis and of lactic acid, also variations in mineral content, disturbed albumin-globulin ratio with increases in the globulin and fibrinogen fractions, increase in thrombocytes associated with a decrease in their electrical charges, and agglutination of platelets. All changes in blood chemistry were more extensive in patients with decompensation than in the normal. Collectively, the phenomena observed were characterized as profound physical-chemical changes in the blood, which would favor the formation of thrombi and emboli. The more definite changes in decompensation were attributed to blood stasis, a condition known to favor embolism or thrombosis, which may be directly initiated and thus rendered easier of formation by a foreign intravenous solution. The blood changes caused by the latter fulfil the requirements for thrombus formation, according to previous studies of the same authors.[2] These results of intravenous medication merit serious thought.

Intravenous injections in general should be appraised more carefully than is usually the case. The results reported by Stuber and Lang are convincing; in fact, they confirm experimental evidence previously emphasized by The Journal. Against a background of such correlated experimental and clinical evidence, much that has been claimed for intravenous medication appears doubtful.

The clinical significance of these phenomena cannot be overlooked in view of reported cases with disturbing symptoms and even of death following intravenous injections of dextrose. Such reports have been recently published by Askey and Hall,[3] Ylanan,[4] and Opitz.[5] The symptoms, which appear to be common to such injections, consist of flushing of the face, headache, marked rise of body temperature, severe chills, diuresis and sometimes collapse. Although death in Askey and Hall's case was attributed to the intravenous dextrose, caution should be exercised in the correct interpretation of clinical cases with severe disease. Yet it is under just such conditions that the results of Stuber and Lang enjoin great caution on the physician attempting treatment by the intravenous method. In this connection, the recent report by Helmholz [6] of the Mayo Clinic, on the effects of hypertonic sucrose solutions injected intravenously, should not be overlooked. This solution is reported to have caused renal tubular injury from which recovery appears to have occurred, although some chronic changes persisted.

In contrast to the experimental and clinical evidence here cited is the commercial propaganda disseminated through the organs of proprietary manufacturers who advocate and exploit all sorts of substances and solutions for intravenous injection. It is unfortunate that credulous and uncritical physicians accept these claims and thoughtlessly jeopardize the lives of their patients. Probably the height of absurdity, if not of recklessness, has been reached in the endorsement of orange juice intravenously. A physician of South Africa [7] has stated that he gave intravenous injections of raw, unneutralized orange juice (10 cc. in 150 cc. of physiologic solution of sodium chloride) at intervals to a patient and that this caused steady improvement and disappearance of all symptoms of scurvy and saved the man's life. Such a procedure could have amounted to nothing more than a spectacular test of the patient's heroic resistance to a foreign agent. Nevertheless the obvious reasoning of the physician—*post hoc ergo propter hoc*—and the single uncontrolled case did not prevent the report from becoming a "contribution" to medical literature and thus abetting the abuse of "intravenous therapy."

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[1] Stuber, B., and Lang, K.: Arch. f. exper. Path. u. Pharmakol. **154:** 50, 1930.

[2] Stuber, B., and Lang, K.: Arch. f. exper. Path. u. Pharmakol. **154:** 22, 1930.

[3] Askey, E. V., and Hall, E. M.: California & West. Med. **32:** 394 (June) 1930.

[4] Ylanan, C. R.: J. Philippine Islands M. A. **10:** 440 (Oct.) 1930.

[5] Opitz, H.: Klin. Wchnschr. **1:** 117 (Jan. 15) 1922.

[6] Helmholz, H. F.: Proc. Staff Meet. Mayo Clin. **6:** 124 (Feb. 25) 1931.

Nearly every physician has observed sudden and alarming symptoms accompanying intravenous injections. The practical difficulties are that the changes and symptoms are not exactly predictable, and the solution or drug, once it is in the circulation, is not retrievable. Before attempting such injections, the physician should keep in mind the physical-chemical changes which occur from the sudden introduction of foreign agents into the blood stream, and the necessity for great caution and restraint in the administration and choice of remedial agents for intravenous use.

THE GENEVA CONVENTION OF 1931

The international conference on the limitation of the manufacture of narcotic drugs, held in Geneva, Switzerland, during the past summer, was guided not only by altruistic motives but also by practical objectives. The treaty resulting from the conference should be a beneficial influence in helping to solve the medicosocial problem of drug addiction, in simplifying the administration of laws and regulations governing the distribution and uses of these drugs, and in reducing the quantity of contraband arriving at American ports. Approximately three and a half tons of contraband narcotic drugs was seized last year, all destined for illegitimate trade and originating outside the Western Hemisphere. The quantity of contraband confiscated indicates the extent of the illegitimate market for these substances. This factor is all the more important when it is appreciated that drug addiction becomes established at a much earlier age than is generally supposed; almost half, or 47 per cent, of addicts who come within the purview of observation have their habit established before reaching the age of 25 years, and two thirds, or 66 per cent, before age 30. Measures, therefore, that will tend to lessen the avalanche of contraband drugs reaching American shores are of great importance to this and the rising generation.

Drug addiction occurs in most unexpected places. No occupation possesses a monopoly of the practice. While it appears to be more common in the larger urban communities, where accessibility to the drug is probably greater, the geographic distribution of narcotic drug addiction is comparable to the distribution and concentration of the general population. Its geographic distribution may be compared to an endemic disease that is being engrafted on the people.

One problem of narcotic drug law enforcement in the United States is the prevention of the unlawful introduction of drugs from abroad. Domestic manufacture in the United States is limited so closely to the medical needs of the country that diversion of home-manufactured products is comparatively negligible. Foreign overproduction, however, in excess of the amounts needed for medical and scientific purposes supplies the international illegitimate trade. It is impossible, therefore, for the United States to set its house in order in this regard without the cooperation and assistance of other governments in limiting the manufacture of narcotic drugs to medicinal and scientific needs.

The Geneva convention of 1931 is designed to control further the international traffic and distribution of narcotic drugs and to limit the manufacture of all dangerous and potentially dangerous narcotic drugs to medicinal and scientific requirements. The medical, pharmaceutic, dental and veterinary professions continue as custodians of these narcotics which are so essential in the treatment of the sick. The conference recognized the impossibility of applying, effectively, any scheme for the limitation of manufacture without means of limiting the quantity of raw materials, which factories are permitted to transform into narcotic drugs. The scheme for limitation of manufacture involves the transmission by all countries of estimates of the quantities of narcotic drugs required for domestic consumption and the control of exports from manufacturing countries. The manufacture of narcotic drugs is indirectly limited in the United States already, and the convention does not effect any further limitation of manufacture in this country. Dangerous and potentially dangerous drugs, codeine being included in the latter since it is so easily transformed into dangerous substances, come within the purview of limitation. Annual estimates to be submitted by each government as to the needs for narcotic drugs are based solely on medicinal and scientific needs. Newly discovered products obtained from the dangerous alkaloids of opium or from the ecgonine alkaloids of the coca leaf are restricted to the use of import and export certificates in international traffic until their dangerous properties have been determined. The quantities to be manufactured in any country come within the limit of the annual estimates for medical purposes, thus fixing a definite quantity that may be manufactured. Stricter supervision is to be maintained over the amounts of raw material and manufactured drugs in possession of every manufacturer, including accountability for drugs produced and their disposal; quarterly reports are to be submitted to a central agency, thus setting up, in keeping with previous international agreements, a system or scheme for accounting for the manufacture of narcotic drugs and their distribution in the international trade. More stringent control is to be exercised over imports and exports, and diacetylmorphine (heroin) is to move but once in international traffic.

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[7] Spencer, H. A.: South African M. Record 24: 386 (Sept. 11) 1926.

The Geneva convention of 1931, for limiting the manufacture of narcotic drugs, is of great potential value to the population of the United States. It embodies many features found in the legislation now in effect in the United States, constituting an additional reason for ratification by the Senate. Its ratification should have the support and endorsement of the medical profession.

FOOTBALL FATALITIES

A leading educator[1] remarked several years ago that nothing is more exasperating than to be compelled to witness a great tragedy which we know could be prevented if we could only do the right thing. He added that probably physicians in earlier times felt much the same way when they saw their patients die by the scores during some epidemic with which they were powerless to cope. Until the last half century, he continues, all who had to do with disease were so bound by the bonds of ignorance that they were well-nigh powerless. Meanwhile the progress of science and the unremitting efforts of its numerous devotees in the field of medicine have brought about extremely commendable changes resulting in a shift from the high mortality of an earlier period to the relatively low figures for the present generation. It has been a story of the routing of many scourges, the elimination of the terrors of wound infection, the conquest of yellow fever, the control of malaria, and varied similar experiences that have increased human happiness. Meanwhile great concern is obvious for less spectacular menaces—for the losses from lowered physical efficiency, preventable disorders and bodily injuries. Industrial hazards are attracting the attention of preventive medicine. Efforts are widespread to avert the growing number of accidents incident to the "speed" of present-day life.

Occasionally, disconcerting reports that cannot be lightly thrust aside arouse thoughtful persons to cynical reflections. There is, for example, the annual record of the toll of the firearm, the firecracker and similar "patriotic playthings" that tend to make Independence day recall unnecessary deaths and injuries. The Fourth of July fatalities seem to be confined for the most part to the less intelligent groups in our population. Another harrowing challenge, however, presents itself at the very gates of our most distinguished centers of learning, the American schools, colleges and universities. The now closing football season has taken a toll of thirty or more lives in addition to producing injuries the number and consequences of which cannot even be conjectured. Each new tragedy or distressing accident arouses nation-wide expressions of sympathy and protest only to be completely forgotten in the excitement of the next game.

Football is not a game for the untrained; it calls for strength and courage; its accidents and fatalities need not, however, be inevitable. Those who are devoting their energies to the conservation of life should not sit by listlessly and join in the coaches' lament of "a sad but inevitable death." We must not condone the reckless disregard of the limitations of human endurance and the return of injured players to the field, all for the glory of Alma Mater and the enjoyment of thousands of holiday seekers in the great stadiums.

Physical culture and athletic sports are not intended to develop supermen. At the recent White House Conference on Child Health and Protection, Secretary Ray Lyman Wilbur[2] remarked that we want to see our children develop into adult citizens with wholesome bodies and prepared minds, both under the control of the developed will operating in the atmosphere of what we call character. Does such a program call for a mortality record incident to the tasks? Surely not! The general objectives of a rational plan are to inculcate health habits; to develop the body harmoniously through systematic exercises; to correct physical defects; to form habits of exercise for use in after-school days; to provide situations which will arouse and increase the qualities of courage, fair play, self sacrifice and loyalty; and to give instructions in citizenship through leadership and response to commands.[2] We should be able to discover a way by which these aims can be attained without loss of life in our athletic ventures. Football has a greater incidence of fatalities and permanent injuries than any other sport. The rules committee may well consider carefully what it can do to lessen the hazards of this game.

PANACEAS FOR THE COMMON COLD

With the first blasts of wintry air a considerable number of our citizenry begin to develop the running of the nose, the lacrimation, the depression, the fever and the other symptoms commonly associated with the onset of a cold. No doubt, the vast majority of the practice of physicians is concerned with symptoms of this character. Probably no other disease is responsible for so much temporary disability. From the teachings of the hygienists, the sanitarians, the public health writers and physicians, most of the public have learned that the symptoms can be abated and the cold controlled in the majority of instances if the patient will go promptly to bed and stay there for at least three days. Actual observation indicates that less than one half of one per cent of people really follow this advice.

The promoters of various types of devices and foods associated with health maintenance have been prompt to take advantage of every possibility for exploiting their materials in connection with the universality of the common cold. Vitamin D has been vaunted for this purpose in the form of ultraviolet rays, cod liver oil, cod liver oil concentrates, irradiated foods and what-not, notwithstanding the fact that there is not the slightest scientific evidence to indicate that excess of vitamin D will prevent a cold or have any effect in curing it.

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[1] Harris, F. S., and Butt, N. I.: Scientific Research and Human Welfare, New York, Macmillan Company, 1924.

[2] White House Conference, New York, Century Company, 1930.

More recently evidence has been offered to indicate that in mice an excess of vitamin A favorably affects the tissue of the respiratory tract. Thus far, however, there is not sufficient actual evidence to warrant any claim at all for the use of vitamin A in preventing a cold. Nevertheless, the National Dairy Company, through one of its subsidiaries, presents the following statement in its advertising:

> "Dr. E. V. McCollum, world-known nutritionist from Johns Hopkins, in an address before the American College of Physicians, stated that lack of Vitamin A and common cold are linked together.
>
> "Think what this means! If your body contains plenty of Vitamin A, you are not so likely to get a 'cold.'
>
> "What common, economical food is the best source of Vitamin A? Milk! If you consume four glassfuls daily—either as a beverage, or in cream soups, creamed vegetables, custards, ice cream, etc.—you will have enough of this priceless vitamin to help guard you from 'colds.'"

For this statement again it may be said there is not adequate evidence.

An old English general practitioner, when asked what was the best thing to get for a cold, replied "Two dozen soft linen handkerchiefs." The tendency of the common cold is to be self-limited. At the end of three days the patient is generally better or beginning to get a more serious disease. The simple home remedies established by use in the last century will continue to be employed with considerable satisfaction by most people. They involve going to bed, indulging in perspiration by the use of hot water bottles and warm drinks slightly alkaline, the prescription of remedies somewhat antipyretic and analgesic, and watchful waiting for the onset of symptoms indicating any complication.

In the meantime, both the physician and the layman may well be advised to distrust conclusions as to the prophylactic value of any device or preparation for the common cold beyond the well established hygienic advice to stay out of crowds, to keep the head cool and the feet warm, and specifically to keep away from people who have colds. Our modern housing and transportation make the last mentioned measure almost an impossibility.

As concerns vitamin A particularly, it has been established that it has in mice the virtue of maintaining the integrity of the epithelial linings of the mucous tracts and the skin. Acceptable evidence in support of its specific virtues as related to the common cold is not available. Indeed, such evidence as is available tends to indicate that it has little if any important virtue in this regard.

Current Comment

THE TREND OF ADVERTISING

When any industry or profession begins to take stock of its own methods with a view toward reform, those methods have probably evolved to a point at which they are antisocial and opposed to the general good. Today, leaders in the advertising field are protesting in their own organizations against abuses to which THE JOURNAL has been referring for several years. In a recent address before the Advertising Council of Chicago, Mr. Ralph Starr Butler of the General Foods Corporation emphasized the fact that the public is not sufficiently educated to recognize exaggerated and untrue claims in most instances and that the continued use of such claims by many advertisers is likely to lead eventually to disappointment and to cause the public to indict the veracity of advertising as a whole. Mr. Butler was particularly concerned, however, with the type of advertising which discusses the competitor's product rather than the goods of the manufacturer who purchases the space. In good times, when conditions are generally satisfactory, most manufacturers and most salesmen find business so easy to secure that they concern themselves only with the sale of their own products. In times of economic stress, however, the average individual travels about with a chip on his shoulder, ready to attack his competitor for what may be merely the results of bad times or perhaps merely his own failure. Mr. Butler referred particularly to the type of advertising now employed by several manufacturers of cigarets. The claims made are mutually contradictory, and it seems reasonable to believe that sufficient emphasis on these points to the public will lead intelligent readers eventually to the opinion that neither of the products is good. In the thesis emphasized by Mr. Butler there is a lesson for the medical profession, the hospitals and all those associated in the practice of medicine today. Much is to be gained by mutual activity, by helpful cooperation and by education of the public in the service that medicine is able to render. In some communities, various medical groups associated with individual hospitals, with individual schools or in other ways have reflected unfavorably to the public on their presumably competitive neighbors. Such reflections will do little to aid those who make them; their ultimate result will probably be harm to the practice of medicine as a whole in that community.

INSULIN—A PROTEIN

In the latest edition of his well known book on the treatment of diabetes mellitus, Joslin[1] remarks that "diabetes is no longer fatal and the diabetic has ceased to die of his disease." One of the main factors, and probably the most important influence, in bringing about this beneficent result has been the discovery of insulin and the introduction of its use. The continued efficacy of the commercial preparations of the pancreatic hormone that are now everywhere available has brought much happiness. The duration of life for diabetic children, who seldom survived diabetes for more than two years in former days, has already been trebled. Joslin says, "The diabetic child of today is a living and not a dying diabetic." In view of these cheering statements it will readily be understood why scientists are at present so deeply concerned about the chemical nature and properties of insulin, the substance that possesses such remarkable physiologic potencies. Indeed, its uniqueness seems to be accentuated as the years pass by. The early investigations of insulin gave indications that it is either a protein or a protein-like substance or something closely associated with proteins in nature. Very active preparations give many of the familiar protein test reactions; they yield familiar amino-acids so characteristic as protein disintegration products; they are destroyed by digestion with proteolytic enzymes, namely, trypsin and pepsin. Then came the splendid contributions from the laboratory of Abel at Johns Hopkins University, resulting in the preparation of highly purified, optically active crystalline products. To the chemist the production of crystals out of amorphous residues always represents an apparent step in the direction of greater purity. Using crystalline insulin as a material for new studies, Sjögren and Svedberg[2] of the University of Uppsala have estimated its molecular weight by their ultracentrifugal methods. It approximates 35,100. Insulin is stable from a p_H of about 4.5 to about 7.0; at higher or lower hydrogen ion concentrations the molecule is broken into smaller units. The molecular weight, sedimentation constant, molar frictional constant and molecular radius of insulin are within the limits of error identical with the corresponding constants for egg albumin and Bence-Jones protein. This circumstance makes it extremely probable that insulin is a well defined protein and that the physiologic activity of this hormone is a property of the insulin molecule itself or of some special group within it. Recent months have witnessed the successful crystallization of several enzymes—urease, pepsin, trypsin and amylase—and the growth of new evidence that these, too, presumably belong to the category of proteins.

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[1] Joslin, E. P.: Treatment of Diabetes Mellitus, ed. 4, Philadelphia, W. B. Saunders Company, 1929.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 11:15 a. m. on Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

December 19. Diphtheria Prevention.

Five Minute Health Talks may be heard over Station WBBM of the Columbia Broadcasting System from 2:25 p. m. to 2:30 p. m. on Monday, Wednesday and Friday.

The program for the week is as follows:

December 14. Diphtheria Prevention.
December 16. Diphtheria Prevention.
December 18. Diphtheria Prevention.

The broadcast this week is in conjunction with the Chicago health department.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Drs. William R. P. Clark and John H. Graves have been appointed members of the state board of health to succeed Drs. Adelaide Brown and Edward F. Glaser, resigned. ——Dr. Eli A. Kusel has been appointed city health officer of Oroville, and Dr. Edwin B. Godfrey, health officer of San Bernardino County to succeed Dr. Samuel B. Richards.——The city of Santa Paula health department has been taken over by the county health department.

Outbreak of Trichinosis.—Sixteen cases of trichinosis caused by the eating of jerked bear meat were recently reported in Vallejo, San Francisco and Oakdale. September 16, a Vallejo boy killed a bear in Trinity County. A number of persons ate steaks, roast and liver from the bear and the remainder was jerked and smoked. A San Francisco man took a portion of the jerked meat home and the remainder was brought to Vallejo. This meat was distributed among families in Vallejo, San Francisco and Oakdale, where cases from this source occurred. The boy who shot the bear died, October 13. According to the state department of health in its bulletin, November 14, it is possible that more fatalities will occur. A sample of the meat sent to the state laboratory was found positive for Trichinella spiralis.

COLORADO

License Reinstated.—At a meeting of the state board of medical examiners, October 6, the license of Dr. George D. Hoschouer, Denver, was reinstated. Dr. Hoschouer's license had been revoked, April 7, for unprofessional and dishonorable conduct in associating with an unlicensed man.

Society News.—Dr. Max M. Ginsburg addressed the Medical Society of the City and County of Denver, November 17, on "Septicemia in Children"; Dr. George M. Blickensderfer presented a case of psychoneurotic vomiting.——Dr. Marion D. Douglass, Jr., Cleveland, addressed a meeting at the University of Colorado School of Medicine, Denver, November 23, on "Tumors of the Urethra."

FLORIDA

Society News.—The Florida Public Health Association held its annual public health conference, December 7-10, in Jacksonville. The opening address was given by Governor Doyle E. Carlton on "The State in Public Health"; among others, Dr. John A. Ferrell of the Rockefeller Foundation, New York, spoke on "Education and Training of Public Health Personnel." ——Dr. William E. Ross, Jacksonville, addressed the Orange County Medical Society, Orlando, October 21, on "Milk, with Special Reference to the Value of Certified Milk to the Individual and a Certified Dairy to a Community," and Dr. Joseph H. Chiles, Orlando, gave a paper on "Infantile Impetigo Contagiosa."——The Central Florida Medical Society was addressed at its semiannual meeting in Ocala, October 15, by Drs. Gaston H. Edwards, Orlando, and James Ralston Wells, Daytona Beach, on "The County Society" and "The Public Relations Committee's Activities," respectively. Dr. Edwards also addressed the October 14 meeting of the Polk County Medical Society in Bartow on "Cooperation of Individuals and of County Societies as a Means of Benefit to Them and to the State Association," and Dr. Kenneth Phillips, Miami, spoke on "Essential Nature of Bronchial Asthma."——Dr. Robert A. Strong, New Orleans, addressed the Duval County Medical Society, Jacksonville, October 2, on "Our Newer Knowledge of Nutrition."

GEORGIA

Meningitis at Federal Penitentiary.—Four cases of spinal meningitis with two fatalities were reported between November 8 and November 19 at the federal penitentiary, Atlanta. Three new cases were reported, November 28. According to the newspapers, no new commitments will be sent to the penitentiary until the disease has subsided. Prisoners destined for the institution will be sent to Leavenworth and to the reformatory at Petersburg, Va. It was stated that the Atlanta penitentiary is overcrowded, the present population having been reported as about 3,800, nearly double the prison's capacity of 2,000. Members of the U. S. Public Health Service have been in constant attendance at the institution since the disease was reported, to prevent its further spread.

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[2] Sjögren, B., and Svedberg, T.: The Molecular Weight of Insulin, J. Am. Chem. Soc. 53:2657 (July) 1931.

ILLINOIS

Society News.—Dr. Albert B. Yudelson, Chicago, addressed the Peoria City Medical Society, December 1, on "Relief of Symptoms of Tabes Dorsalis."——Dr. Charles Spencer Williamson, Chicago, addressed the DeWitt County Medical Society, Clinton, November 30, on pneumonia.——Dr. Chester H. Warfield, Chicago, addressed the Will-Grundy Counties Medical Society, December 2, on bone tumors.

Chicago

Personal.—Drs. Douglas Gordon Campbell and Margaret W. Gerard have been appointed heads of the psychiatric service in the University of Chicago's Student Health Service to succeed Dr. Stewart B. Sniffen, who resigned because of ill health. ——Dr. Herman N. Bundesen, health commissioner of Chicago, has resigned as coroner of Cook County.

Society News.—The Chicago Society of Internal Medicine will be addressed, December 14, among others, by Drs. William A. Brams and Louis N. Katz on "Nature of Fibrillation and Flutter of the Heart."——At the meeting of the Chicago Surgical Society, December 11, Dr. Samuel J. Fogelson, among others, spoke on "Treatment of Peptic Ulcer with Gastric Mucin."——A symposium will be held before the Chicago Medical Society, December 16, on the infantile cerebral palsies (The Spastic Child); the speakers will be Drs. H. Douglas Singer, Julius H. Hess, Henry B. Thomas, Abraham A. Low, and Miss Jane A. Neil, assistant superintendent of the public school system of Chicago.

City Council Approves Vivisection Ordinance.—At a meeting, December 1, the city council by an overwhelming majority approved an ordinance which permits the mayor to name a supervisor of the pound and release unclaimed dogs to medical schools and research laboratories approved by the city health commissioner and the chief of police for experimental work in medicine. This ordinance was a substitute for one submitted by antivivisectionists, which would prevent the medical schools and research institutions of Chicago from obtaining animals from the pound for experimental purposes. At a hearing of the judiciary committee of the city council, November 3, the speakers in opposition to the latter ordinance included Robert Maynard Hutchins, president, University of Chicago; Drs. Anton J. Carlson, professor of physiology, University of Chicago; Andrew C. Ivy, Nathan Smith Davis professor of physiology and professor of pharmacology, Northwestern University Medical School; David J. Davis, dean, University of Illinois College of Medicine; Louis D. Moorhead, dean, Loyola University School of Medicine, and Herman L. Kretschmer, president-elect, Chicago Medical Society.

LOUISIANA

Society News.—At the thirteenth annual fall meeting of the Sixth District Medical Society in Jackson, October 14, the speakers included Drs. Sidney C. Barrow, Shreveport, on "Economic Trend in Medicine"; Charles S. Miller, Jr., Jackson, "Psychiatry and the General Practitioner"; Lester J. Williams, Baton Rouge, "Roentgen Ray in Skin Diseases," and Lucius D. McGehee, Hammond, "General Practitioner and Specialist."

Recent Changes at Tulane University.—The following changes in the faculty, among others, at Tulane University of Louisiana School of Medicine, New Orleans, have recently been announced:

Dr. William Harvey Perkins, professor and head of the department of preventive medicine.
Dr. Bruce Peck Webster, assistant professor of medicine.
Dr. Kiyoshi Hosoi, Honolulu, Hawaii, instructor in surgery.
Dr. Howard Raymond Mahorner, instructor in surgery.
Dr. Ambrose Howell Storck, instructor in clinical surgery.
Dr. Durward Olera Wright, instructor in medicine.
Dr. Herbert John Schattenberg, instructor in pathology and bacteriology.

The following new appointments in the Graduate School of Medicine of Tulane were also announced:

Dr. Joseph Hume, director, division of urology.
Walter Clarence De Rouen, Jr., D.D.S., assistant professor of oral hygiene.
Dr. Frank James Kinberger, assistant professor of clinical pediatrics.
Dr. Eugene B. Vickery, assistant professor of urology.
Dr. Hymen Leon Cohen, clinical assistant in obstetrics.
Dr. John Ashby Colclough, clinical assistant in operative surgery.
Dr. Warren Leucht Rosen, clinical assistant in medicine.
Dr. Philip John Saleeby, clinical assistant in metabolism and dietetics.
Dr. Jack Ezell Strange, clinical assistant in pediatrics.

MARYLAND

Osler and Halsted Clinics Completed.—A medical and surgical building was completed at Johns Hopkins Hospital, November 6, giving the institution a capacity of about 1,000 beds. Half of the building, the Osler Clinic, was completed and occupied in January; the other half is the Halsted Clinic. These clinics are memorials to the late Dr. William S. Halsted, first professor of surgery, and the late Sir William Osler, first professor of medicine at the Johns Hopkins University School of Medicine. The addition, which provides about 300 beds, will house only ward patients. The building cost $1,740,000, provided by a gift of $500,000 from the General Education Board and an appropriation from an anonymous gift of $3,000,000. An additional endowment is being sought to meet the cost of maintenance of the annex recently completed.

Herter Lectures Given by Dr. Greenwood.—The annual Herter lectures were given, December 2-4, at the Johns Hopkins School of Hygiene and Public Health, Baltimore, by Dr. Major Greenwood, since 1926 professor of epidemiology and vital statistics, London School of Hygiene and Tropical Medicine. The lectures were devoted to a discussion of experiments in the prevention and control of epidemics, beginning with a review of the historical background of epidemiology. The Herter Foundation was established in 1902 by a gift of $25,000 from Dr. and Mrs. Christian A. Herter, New York, "for the formation of a memorial lectureship designed to promote a more intimate knowledge of the researches of foreign investigators in the realm of medical science."

MASSACHUSETTS

Society News.—The Boston Society of Psychiatry and Neurology was addressed, November 19, by Drs. Tracy J. Putnam on "Treatment of Dystonia Musculorum Deformans by Section of the Extrapyramidal Tracts"; Leon J. Saul and Hallowell Davis, "Action Currents in the Auditory Pathways," and Jacob Kasanin, "Pavlov's Theory of Schizophrenia."——The Cambridge Tuberculosis Association recently changed its name to the Cambridge Tuberculosis and Health Association; Dr. Hilbert F. Day is president.——Dr. Russell L. Haden, Cleveland, addressed the Harvard Medical Society, November 24, on "Development of Methods for the Determination of the Numbers, Size and Hemoglobin Content of the Red Blood Cell."——The New England Pediatric Society was addressed in Boston, November 19, by Dr. Homer F. Swift, New York, on "Rheumatic Fever."——Dr. Roderick Heffron, Boston, addressed the Hampden District Medical Society, Springfield, November 24, on "The Massachusetts Pneumonia Program"; Drs. Laurence D. Chapin and Ernest A. Gates discussed Addison's disease.——A symposium on gonorrheal vulvovaginitis featured the first annual meeting of the Neisserian Medical Society of Massachusetts, Boston, November 18.——Dr. Harold I. L. Loverud, Boston, among others, addressed the New England Roentgen Ray Society, Boston, November 20, on "Massive Collapse Complicating Pneumonia."——A program on congenital cardiovascular disease was held in Boston, December 2, by the New England Heart Association; this was the second meeting of the cardiac course for the season; the speakers included Drs. Arthur C. Ernstene, Howard B. Sprague, Hyman Green and Kenneth D. Blackfan.——A symposium on the surgical treatment of pulmonary tuberculosis featured the meeting in Waltham, December 10, of the Middlesex South District Medical Society.

MINNESOTA

Dr. Simons Honored.—Dr. Edwin J. Simons, Swanville, was awarded the 1931 prize of $250 by the Minnesota Society of Internal Medicine for his monograph on primary carcinoma of the lung. The prize is offered annually to the practitioner of medicine in the state, not a member of the society, who has made the most valuable contribution to medical knowledge.

Chiropractor Sentenced.—George F. Sjoden, licensed chiropractor of Kensington, was sentenced to six months at hard labor in the Douglas County jail, November 12, by Judge Roeser, for practicing medicine without a license. Sjoden has been prescribing medicine and attempting to remove tonsils. After having the medical practice act and the chiropractic law very carefully explained to Mr. Sjoden, the judge suspended the sentence on condition that he pay the costs of the prosecution, that he refrain from practicing medicine in the future and that he keep the peace and be on good behavior.

Society News.—Dr. Moses Barron, Minneapolis, spoke on "The Importance of Hepatomegaly and Splenomegaly in Differential Diagnosis" before the Minnesota Academy of Medicine, November 11; Dr. Archa E. Wilcox presented a case report on acute condition in the abdomen complicating pregnancy.——The Minneapolis Surgical Society was addressed, December 3, among others, by Dr. Daniel A. MacDonald on "Double Uterus and Vagina with Unilateral Atresia."——Dr. Alfred W. Adson, Rochester, among others, addressed the Minnesota Academy of Ophthalmology and Otolaryngology at a meeting in Rochester, November 13, on abscess of the brain.

MISSOURI

Society Celebrates Golden Jubilee.—The fiftieth anniversary of the St. Louis Medical Society was observed at a meeting, November 24. The program included addresses by Alphonse M. Schwitalla, S.J., Ph.D., dean, St. Louis University School of Medicine, on "Men in Medicine"; Dr. Robert J. Terry, professor of anatomy, Washington University School of Medicine, "Contributors to Medicine," and Dr. Amand N. Ravold, "Brief Sketches of a Few St. Louis Physicians." Special recognition was given to the fifty years or more spent in the practice of medicine by the following physicians: Drs. Ravold, Max C. Starkloff, Carl Barck, James A. Dickson, Willis Hall, Louis Hauck, Harvey G. Mudd and Henry L. Wolfner, St. Louis; Eugene F. Hauck, Clayton, and Henry J. Harnisch, Flagstaff, Ariz. With the exception of Dr. Starkloff, who was ill, all were present. Seven of the physicians are graduates of the St. Louis Medical College, now known as Washington University School of Medicine. Entertainment included an informal reception, bridge, refreshments and dancing.

Society News.—At a meeting of the St. Louis Medical Society, November 6, Dr. Francis L. Reder was elected president and Dr. Alvin H. Diehr, secretary. Dr. Amalie M. Napier was elected president and Dr. Emma Phelan, secretary of the Women Members of the St. Louis Medical Society at a meeting, November 3.——The Jackson County Medical Society, Kansas City, was addressed, November 24, by Drs. Samuel H. Snider on "Bronchial Function in Pulmonary Tuberculosis"; Ralph E. Emerson Duncan, "Use of Oxygen as a Therapeutic Agent," and Harvey P. Boughnou, "Atelectasis versus Pneumonia."——Dr. Russell M. Wilder, Rochester, Minn., addressed the Kansas City Academy of Medicine, November 20, on "Diseases of the Parathyroid."——A symposium on the diagnosis of diseases and abnormalities of the gastro-intestinal tract featured a joint meeting of the Radiological Society of North America and the St. Louis Medical Society, December 1; the speakers were Drs. Thomas A. Groover and Alexander B. Moore, Washington, D. C.; Henry K. Pancoast, Philadelphia; Byrl R. Kirklin and Harry M. Weber, Rochester, Minn.; John L. Kantor, New York, and Horace W. Soper and Evarts A. Graham, St. Louis. The two societies were guests of the St. Louis Roentgen Society at a luncheon.——Dr. Leo G. Rigler, Minneapolis, addressed the St. Louis Trudeau Club, December 3, on "Roentgen-Ray Observations on Free Pleural Effusion," and Dr. Louis H. Clerf, Philadelphia, "Bronchoscopic Observations in Tuberculosis."

MONTANA

Society News.—The Mount Powell Medical Society recently sponsored the first public meeting devoted to cancer that was ever held in Montana at Anaconda. More than 250 persons were in attendance. Dr. William F. Cogswell, secretary of the state board of health, spoke, and the Lewis cancer film was shown.

NEW YORK

Meeting of Laboratory Workers.—The New York State Association of Public Health Laboratories held its autumn meeting in Albany, November 6. Guest speakers were Philip B. Hadley, Ph.D., Ann Arbor, Mich., on "Microbic Dissociation in Relation to Medical Bacteriology"; Dr. Fred W. Stewart, New York, "Aspiration Diagnosis of Tumors," and Chester W. Emmons, Ph.D., New York, "Variations in the Ringworm Fungi." Round table discussions were held relating to regulation of human blood donors and to isolation and identification of meningococci in the spinal fluid from cases of meningitis. In this connection the state laboratory has asked physicians to send either transplants of cultures of meningococci or specimens of spinal fluid for use in studies now in progress on the production of antimeningococcus serum. Dr. George M. Mackenzie, Cooperstown, is president of the laboratory association.

New York City

Third Harvey Lecture.—William H. Taliaferro, Ph.D., professor of parasitology, University of Chicago, will deliver the third Harvey Society Lecture at the New York Academy of Medicine, December 17, on "Infection and Resistance to the Blood-Inhabiting Protozoa."

Society News.—Dr. Udo J. Wile, Ann Arbor, Mich., addressed the New York Academy of Medicine, December 3, on "Cutaneous Manifestations of Systemic Disease."——Dr. Harold E. B. Pardee addressed the Medical Society of the County of Queens, November 24, on "Diagnosis and Treatment of Coronary Arteriosclerosis." Dr. Frank C. Yeomans addressed the society, December 4, on diagnosis in proctology.——Drs. Norman E. Titus and George C. Andrews, Jr., addressed the Yorkville Medical Society, November 16, on "Medical Diathermy" and "Physical Therapy in Dermatology."

Exhibit on Pure Air and Clean Streets.—To impress on the public mind the menace to health of impure air and dusty, cluttered streets, the New York Academy of Medicine has arranged an exhibit to open January 12 and continue for eight days. It will consist of scientific instruments of precision in measuring contamination, models of modern street cleaning apparatus, stoking devices, ventilating machines and motion pictures depicting modern methods, in addition to charts, graphs and photographs. The exhibit is to be held under the auspices of the academy's committee of public health relations and the committee of twenty on outdoor cleanliness.

Hospital Opens Unit for Middle Man.—An experiment in the provision of hospital and nursing care for patients of moderate means was launched by Mount Sinai Hospital, November 18, with the opening of a new twelve-story building for this service. Three departures from the usual hospital practice will be instituted, the hospital has announced. These are innovations in the construction of the building, group nursing and voluntary action of the medical staff in setting a definite limitation on the fees to be charged by surgeons and attending physicians. The expense of the new service will include, for bed accommodations, $35 per week; special group or cooperative nursing, if desired, $45 per week and the fees of the medical staff restricted to a similar proportion. In the new hospital, which will accommodate 156 patients, rooms are arranged in units of two, each containing four beds in cubicles, with a nurse's substation between. Quiet rooms are provided for patients who are very ill. Lockers are used for individual patients and a built-in closet for nursing supplies. The new building is constructed of brick and limestone to harmonize with the other Mount Sinai buildings and occupies the entire Fifth Avenue frontage between One Hundred and First and One Hundred and Second streets. It cost approximately $1,250,000. One floor will house the newly organized consultation service for patients of moderate means (The Journal, July 25, p. 255).

OKLAHOMA

Personal.—Dr. Wann Langston, Oklahoma City, has resigned as superintendent of the University Hospital to become professor of clinical medicine in the University of Oklahoma Medical School.——Dr. Thomas W. Stallings, Tulsa, has been appointed health officer of Tulsa County, succeeding Dr. Bernard L. Branley.

Medical Films.—The Oklahoma State Medical Association has purchased two films, one on the application of forceps and one on eclampsia, for circulation among the county societies. The films are kept and serviced by the extension department of the University of Oklahoma, Norman. County societies are required to see that they are handled only by qualified operators and to pay the expenses of transportation to and from Norman.

Society News.—Drs. Leander A. Riely and John E. Heatley, Oklahoma City, addressed the Osage County Medical Society, recently, on "Clinical Aspects of Gallbladder Disease" and "X-Ray Diagnosis of Gallbladder Disease," respectively.——Among physicians who addressed the annual meeting of the Oklahoma State Hospital Association, Oklahoma City, December 2-3, were Drs. Talbert B. Hinson, Enid, "Hospital Rates"; Frank H. McGregor, Mangum, "Effects of the Present Economic Condition on Hospital Operation"; Berry H. Burnett, Duncan, "Hospital Relationship to Practitioners of Medicine," and D. B. Collins, Waurika, "The Problem of the Ever-Increasing Automobile Accidents."

PENNSYLVANIA

Society News.—Drs. John Sturgeon and Ralph P. Beatty discussed "Pyelitis in Infancy and Childhood" from the points of view of the pediatrician and urologist, respectively, before the Fayette County Medical Society, Uniontown, December 3.——Dr. Thomas A. Shallow, Philadelphia, addressed the Montgomery County Medical Society, Norristown, December 9, on intestinal obstruction.——Dr. Ludvig Hektoen, Chicago, delivered a lecture entitled "What About Scarlet Fever?" at the Western Pennsylvania Hospital, December 9.

Philadelphia

Society News.—Dr. Robert J. Hunter, among others, addressed the Philadelphia Neurological Society, November 27, on "Localization of Intracranial Tumors by the Bárány Method."——Drs. Robert J. Hunter and Henry Dintenfass addressed the Philadelphia Laryngological Society, December 1, on "Physiology of the Antrum" and "Catheterization of the Natural Ostium of the Maxillary Sinus versus Inferior Meatal Puncture," respectively.——Dr. Edwin Beer, New York, delivered the annual Mütter Lecture of the College of Physicians of Philadelphia, December 2, on "Diverticulosis of the Alimentary and Urinary Tracts."——Speakers at the meeting of the Philadelphia County Medical Society, December 9, were Dr. Herman O. Mosenthal, New York, on "Diet in Bright's Disease"; Dr. Carl F. Schmidt, "Respiratory Depressants and Respiratory Stimulants," and Charles H. LaWall, Pharm.D., "Cooperation Between Physician and Pharmacist."——Dr. Truman G. Schnabel delivered the postgraduate seminar, December 4, on "Anemias Simulating Pernicious Anemia."

TEXAS

Change in Subscription Representative.—Mr. William M. Dickinson, Dallas, is no longer acting as representative for publications of the American Medical Association. Mr. Fletcher Lane, Waco, has succeeded him.

Society News.—Drs. Louis Daily, Houston, and Horace S. Renshaw addressed the Tarrant County Medical Society, Fort Worth, November 3, on "Value of Bronchoscopy in Diagnosis and Treatment" and "Boehler Treatment of Fractures," respectively.

VIRGINIA

Health at Richmond.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a population of 36 million, for the week ended November 28, indicate that the highest mortality rate (17.8) appears for Richmond and the rate for the group of cities as a whole, 10.5. The mortality rate for Richmond for the corresponding period last year was 10.8 and for the group of cities, 10.7. The annual rate for eighty-two cities for the forty-eight weeks of 1931 was 11.8, as against a rate of 11.9 for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have large Negro populations may tend to increase the death rate.

GENERAL

Society News.—Dr. Frank Smithies, Chicago, was elected president of the American Society of Tropical Medicine at its annual meeting in New Orleans, November 20, and Dr. Henry E. Meleney, Nashville, Tenn., secretary. The next annual session will be held with the Southern Medical Association in Birmingham, Nov. 18-20, 1932.——The annual conference of Eastern roentgenologists will be held, January 29-30, in New York. Societies that will participate include the New York Roentgen Society, New England Roentgen Society, Philadelphia Roentgen Ray Society, and the roentgenologists of Baltimore and Washington.

Unauthorized Salesman Preys on Physicians.—A man using the name G. A. Jennings is reported to be swindling physicians in several Southern states by posing as a representative of the Woolcraft Company, Grand Rapids, Mich., makers of men's clothing. The firm reports that he visits physicians exclusively and that the most recent complaints have come from Georgia. He carries expensive samples, and his story is that he is making a special introductory price to representative citizens to advertise the firm. He collects a deposit from the customer and disappears. The man is described as about 40 years old, slightly bald. He has red hair, a small red mustache and dark eyes and frequently wears dark rimmed glasses. His height is about 5 feet 8 inches and his weight between 150 and 160 pounds. Any physicians approached by G. A. Jennings are requested to wire the firm collect immediately. It is said that his operations have continued over a period of two years. The fact that he promises a future delivery of the goods gives him time to seek other fields before a complaint can be made.

Eyestrain Among School Children.—A comprehensive study of the strain on eyesight in school activities is being undertaken as a joint project of various departments of Columbia University and the National Society for the Prevention of Blindness. No time limit has been set for the completion of the work, nor is the scope of the problem being limited to fit a given group of workers, the report states. The plan is to carry the investigations over as long a period of time and into as many fields as is necessary. A study of the eyestrain of the school children from the ages of 5 to 10 years is now being carried on as the first step in the proposed work. The program of research will include the vision of the child, the lighting conditions under which he works, the materials he uses and the length of time he uses them. The announcement reports that plans have been completed for this research after a year of planning by Teachers College of Columbia University, staff members of the department of ophthalmology in the medical school, authorities in related fields within the university, and staff members of the National Society for the Prevention of Blindness.

Association for Advancement of Science.—Section N (the medical sciences) of the American Association for the Advancement of Science will meet, December 28-31, during the general meeting of the association at New Orleans. Subjects to be considered include "Parasitology of Medical Interest" at a joint meeting with the American Society of Parasitologists; "Effect of Drugs and Internal Conditions on Behavior"; symposiums on growth in joint sessions with the sections on anthropology and archaeology and on social and economic sciences; mental disorders, which will be discussed in two sessions, one with the section on psychology. Among numerous speakers announced are Dr. Abraham Myerson, Boston, on "Psychological Approach to Functional Nervous Conditions"; Dr. Gilbert J. Rich, New York, "Relationships Between Personality and Body Chemistry"; Richard E. Scammon, Ph.D., Minneapolis, growth of the individual; Dr. Frederick J. Cullen, U. S. Food and Drug Administration, "Fake Remedies Unearthed by the Pure Food and Drug Act." Dr. Howard T. Karsner, Cleveland, is vice president for the medical section.

Hospital Association Opposes Increase in Federal Hospitals.—A resolution opposing continuance or enlargement of the present legislative program of the federal government in the construction of veterans' hospitals has been sent to members of Congress by the American Protestant Hospital Association through its secretary, Frank C. English, D.D., Cincinnati. The protest points out that many general hospitals are burdened financially and need all local revenue. The association feels, therefore, that the plan to send veterans to distant cities and pay for their care, while their families are frequently thrown on local hospitals as charity patients, works a hardship on such hospitals, especially when half of their beds are often vacant. The trustees of the association believe that the government should provide hospitals for the permanently disabled and the tuberculous, cancerous and mental patients, but should consider carefully the question of having those who are temporarily sick and injured treated in civilian hospitals as more economical. It is believed that this can be done at a cost to the government less than what it costs to build and operate veterans' hospitals.

News of Epidemics.—Five thousand residents of Plattsburgh, N. Y., were vaccinated in November to check the spread of an epidemic of smallpox, which amounted to forty cases, November 13.——Whooping cough is reported to be widely prevalent in Illinois, with about 300 cases developing each week, more than twice the weekly average for 1930.——The county jail at Akron, Ohio, was quarantined in November after a prisoner became ill of diphtheria. Six other inmates were found to be carriers.——Public schools in Winchester, Ky., were closed when five cases of scarlet fever were found among the pupils, November 19.——An epidemic of typhoid in Buchanan County, Va., caused local authorities to appeal to the state board of health, November 28, for help in checking it. It was said that in some sections of the county there were families with from one to six members ill. Contamination of springs from which these people take their drinking water was thought to be the cause of the outbreak.——Several cases of typhoid in Wilmington, Del., were recently traced to the unauthorized collection of garbage by farmers who sold raw milk in the city. It was said that farmers removed garbage in violation of law from places where there were cases of typhoid and later dumped this contaminated material on their farms, where it was eaten by cattle or polluted the water they drank.

CORRECTION

"Focal Infection of Anal Origin."—In the article by Dr. Louis J. Hirschman in THE JOURNAL, November 28, page 1609, the strength of the nupercaine solution advised for infiltration anesthesia should be 0.05 per cent instead of 0.5 per cent. The strength of the procaine solution mentioned is correct.

Government Services

Army Personals

Major George E. Hesner, relieved at Alcatraz, Calif., and ordered to duty in the Philippine Department; Capt. John P. Russell, San Francisco, for the convenience of the government, proceeded to his home about October 31 to await retirement; Major John M. Hewitt, having attained the age of 64 years, September 25, his retirement from active service by direction of the President is announced; Major Max R. Stockton, on completion of present tour of foreign service, is assigned to duty at the Army Medical Center, Washington, D. C.; Major George W. Reyer, assigned at Fort Bragg, N. C., effective on completion of present tour of foreign service in China; Capt. George P. Chase, relieved at San Francisco and assigned to duty in the Hawaiian Department; Major Clarence M. Reddig, relieved at Washington, D. C., and ordered to duty in the Panama Canal Department; Major William M. White, relieved at Fort Sam Houston and ordered to duty in the Panama Canal Department; Major Oscar T. Kirksey, relieved at Fort Banks, Massachusetts, and ordered to duty in the Philippine Department; Major Meredith R. Johnston, relieved at Panama Canal, C. Z., and ordered to duty at Letterman General Hospital, San Francisco; Capt. James H. Turner, relieved at Fort Sam Houston and ordered to duty in the Panama Canal Department; Capt. Silas B. Hays, relieved at Letterman General Hospital, Presidio of San Francisco, and assigned to duty in Honolulu; Col. Frank W. Weed, relieved at Boston, and assigned to duty in the Philippine Department; Major Peter D. MacNaughton, having been found by an army retiring board incapacitated for active service on account of disability incident thereto, and such finding having been approved by the President, his retirement is announced; Capt. Paul Hayes, relieved at Fort Sheridan, Illinois, and ordered to duty in the Philippine Department.

Changes in Veterans' Administration

The November *Medical Bulletin* of the Veterans' Administration notes the following recent changes in medical personnel, among others:

HOSPITALS

Dr. Leonard M. Brown, from Bronx, N. Y., to St. Cloud, Minn.
Dr. James H. Chapple, from Sheridan, Wyo., to Hines, Ill.
Dr. Compton N. Crook, from Tucson, Ariz., to Outwood, Ky.
Dr. Sherwood Dix, from Bronx, N. Y., to Northport, L. I.
Dr. James H. Dyer, from Lake City, Fla., to Muskogee, Okla.
Dr. William A. Jones, appointed at Palo Alto, Calif.
Dr. Samuel Luber, resigned at Lexington, Ky.
Dr. Willis E. Manney, detailed to Gulfport, Miss.
Dr. Emanuel Messinger, from Northport to Lyons, N. J.
Dr. Asa L. Myers, from Chillicothe, Ohio, to Washington, D. C.
Dr. Luther E. Nichols, from Outwood, Ky., to Tucson, Ariz.
Dr. Tracy C. Owens, permanently assigned at Chillicothe, Ohio.
Dr. Spiro Sargentich, from American Lake, Wash., to central office.
Dr. Frank R. Sedgley, from Minneapolis to Hines, Ill.
Dr. Ashby Steele, from Bedford, Mass., to Lexington.
Dr. Miguel Steinberg, from Bronx, N. Y., to Augusta, Ga.
Dr. Claude A. Thompson, from Muskogee, Okla., to Kansas City.
Dr. John A. Thurston, Jr., from Kansas City to Lake City, Fla.
Dr. Antonino Triolo, from Bronx to Northport.
Dr. Frederick L. Wright, from Palo Alto to American Lake.

REGIONAL OFFICES

Dr. Harold T. Allison, resigned at Scranton, Pa.
Dr. William J. Burdashaw, resigned at New York.
Dr. Samuel C. Kahlstrom, appointed at Cincinnati.
Dr. Frank M. Shafer, from National Military Home, Dayton, Ohio, to National Military Home, Hampton, Va.
Dr. Dana P. Stearns, appointed at Richmond, Va.
Dr. Ralph E. Stevens, resigned at Jacksonville, Fla.

Change of Station in the Navy

Lieut. Comdr. William B. Hetfield from the U. S. S. *Medusa* to the marine corps base, San Diego, Calif.; Lieut. Cyrus C. Brown from the naval hospital, San Diego, to the U. S. S. *Rigel;* Lieut. Comdr. Herbert L. Shinn from the Garde de Haiti, Port au Prince, Haiti, to the navy yard, Washington, D. C.; Lieut. Walter G. Kilbury, from naval hospital, League Island, Philadelphia, to Nicaraguan National Guard Detachment; Lieut. George F. Blodgett from naval hospital, New York, to naval station, Tutuila, Samoa; Lieut. Walter L. Bach, from Guardia Nacional, Nicaragua, to recruiting ship, New York; the resignations of Lieuts. Eric D. Pearson and David M. Segrest have been accepted, effective November 5 and 21, respectively; Lieut. Clyde M. Longstreth's resignation has been accepted, effective February 28.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 14, 1931.

The Increasing Importance of Blood Transfusion

In view of the increasing importance of blood transfusion, the Medical Research Council and the British Red Cross Society have appointed Dr. H. F. Brewer, senior demonstrator of pathology, St. Bartholomew's Hospital, as medical officer to the Blood Transfusion Service organized by the Red Cross. He will supervise the examination of transfusion volunteers and the collation of information on the effect of blood transfusion on donors, and he will carry out research into blood groupings, so that the service can keep abreast of the latest developments in surgery and hematology. Laboratory facilities are being provided by St. Bartholomew's Hospital. Since it was begun in 1921, the Red Cross Blood Transfusion Service has grown steadily. Last year, 1,627 transfusions were carried out, as against 1,333 in 1929. For the first nine months of this year, the number was 1,502. This rise is all the more significant when it is remembered that the success of the liver treatment of pernicious anemia has often obviated the necessity for successive transfusions. The membership of the service is now over 1,100, of whom about a fifth are women. More than a third of the members belong to the Rover Scouts, but almost every social service organization is represented on the service's list of volunteers. It was originally anticipated that a few hundred donors would be ample to meet the needs of all the London hospitals, but it is now found that at least 2,000 are required. The operation is neither painful nor in the least harmful to the donor, who frequently benefits by it. In most cases, if called on in the daytime, he returns to work within an hour. All expenses, including fares, telephone calls and time lost from work, are immediately refunded.

Radium Treatment in the Municipal Hospitals

The importance and advancing standard of the London municipal hospitals, which are quite different from the voluntary hospitals, has been shown in previous letters to The Journal. The Central Public Health Committee of the London County Council, which now controls them all, has had under consideration the advisability of developing radium treatment. The conclusion reached is that it is now so available in the council's hospitals that no additional facilities are required for the present. The committee has decided that at the most important unit, the Lambeth Hospital, where the treatment of cancer by radium and low voltage roentgen rays is given, the medical officer should possess highly specialized knowledge and skill. His position will be designated "whole-time surgical specialist" and his salary will be $6,250, rising by increments to $7,500 a year.

Psychiatric Clinics at the Municipal Hospitals

Increased attention is being given in this country to functional nervous diseases. The Maudsley Hospital in southeast London was endowed by the well known psychiatrist of that name and was organized by the London County council on the lines of the combined neurologic and psychiatric clinics of the continent and of America. It represented the first provision of the kind by a public body in this country. To increase accessibility of psychiatric diagnosis and treatment, the council has now established psychiatric clinics at each of the three municipal general hospitals north of the Thames: Mile End Hospital, St. Mary's, Islington, and St. Charles's Hospital, Hammersmith. The Maudsley Hospital has a complete staff of eminent specialists in the various branches of medicine and surgery, and the three new clinics will be subordinate to it. The clinics will be supervised by the medical superintendent of the Maudsley Hospital, and the physicians in charge of them will be drawn from its staff. Patients can be referred to these clinics by their physicians. The condition of suitability is likelihood of fitness for further treatment at the Maudsley Hospital or elsewhere on a voluntary basis. Among suitable conditions are neurotic disturbances, such as neurasthenia, hysteria, obsessional and anxiety states, and mental or neurotic symptoms associated with physical disease. On the other hand, mentally defective patients, those clearly requiring certification and nonvolitional patients are excluded. After diagnosis at the clinics, patients will usually, owing to local exigencies of time and space, be referred for treatment at the Maudsley Hospital.

The Financing of Irish Hospitals by Means of Sweepstakes

The work of financing Irish hospitals by money mostly drawn from England by means of sweepstakes goes merrily on. The third sweepstake of this year is about to be held, and there is little doubt that the fund will reach $10,000,000, of which a third will go to the hospitals. The reason of the great success is that such sweepstakes are illegal in England, and the prospect of large prizes, beginning at $150,000, proves especially attractive. The channel boats from England are crowded with visitors who want to obtain tickets for themselves and their friends. The British government has made ineffectual efforts, by refusing the use of the mails, when possible, and by prosecutions, to stop its subjects from taking part. Journalists from all parts of the world are attending the draw, for which special machinery is installed. Extensive rebuilding of hospitals has already been carried out by means of the proceeds.

The Causes and Prevention of Suicide

At the meeting of the Medico-Legal Society, Dr. Dennis H. Geffen, health officer for Enfield, dealt with the problem of suicide. Its magnitude was shown by the fact that in England and Wales as many as 4,907 persons committed suicide in 1927 and 4,882 in 1928. In addition, probably twice the number attempted suicide but failed. These figures may be compared with the 3,000 women who lose their lives every year in childbirth. The usual verdict after an inquest in a case of suicide is "suicide during temporary insanity," but figures show that only one case in every five is due to definite insanity. What is the cause of the suicide in the 4,000 sane persons? Dr. Geffen finds that it is nearly always present trouble, not fear of the future. But he describes it as a "mentally infectious disease," because it is often due to following an example. The first signs of impending suicide are mental depression, and a threat of suicide should never be taken lightly. Availability of means is important, such as ease in obtaining firearms. The ready availability of coal gas is now a serious matter. Up to the age of 30 there is little difference in the suicide rates of men and of women, but later three times as many men as women commit suicide. The part played by the sex factor accounts for the equalization before 30. Race plays a part; in America the rate for the Negro population is lower than for the white. As to occupation, the highest rate is for those in the liquor trade, and then follow pharmacists, lawyers come third and physicians fourth. As stated by Hoffman in his book on the suicide problem, highly developed mentality and occupational strain may predispose to mental breakdown.

Dealing with prevention, Dr. Geffen could see no advantage in making suicide a criminal act. Our law should be amended in this respect, as has been done by the United States and by Italy. Returning to the power of suggestion, he thought that the press reports of cases of suicide and the methods had a bad effect on the minds of the mentally depressed. This was shown by fashions in suicide. Also, the theory that suicide is hereditary was attributed to the effects of suggestion caused by previous cases in the family. Recently a young lawyer seemed keenly interested in a discussion on methods of suicide. The Roman method of opening a vein in a hot bath was mentioned. A few days later he committed suicide in this manner. The difficulty of restoring to society a man who has attempted suicide is increased if his case has been broadcast in the press. He feels that he is a pariah, and he is ashamed to face the public. The ministry of health insists that notifications of infectious disease must be confidential. If suicide had been accepted as a public health problem, like infectious diseases, and treated in the same way, something would have been done for its prevention. A third method would be investigation of the mentality of those who attempt or commit suicide. Dr. Geffen finds that the former are only too anxious to talk to any one who interests himself in their problem. Cure of the would-be suicide depends on three factors: complete rest, suitable occupation, and reinstatement in his place in life. It would often be necessary to isolate him from his family and acquaintances. There should be a special court to investigate these cases, which should take the form of going into the patient's troubles in comfortable surroundings, and, if necessary, detention should follow in a special hospital, not in a prison.

Improvement in the Health of the School Child

In his annual report on the health of the school child, Sir George H. Newman, *principal medical officer to the ministry* of health, says that school medical officers should conceive the primary object of medical inspection to be the answer to the question "Is this child developing according to the plan which nature has mapped out for him?" This is a difficult question, for it does not depend on averages of height, weight, alertness or mental attainment but on an estimate of the whole individual, who may be naturally short or tall, fat or lean, lethargic or alert, bright or stupid, and never intended by nature to be otherwise. What has to be determined is not whether he is below the average in any respect but whether he is below the standard which nature has set for him. To answer this, the medical officer must be able to visualize each child in a state of normal health and to estimate in what respect he falls short. The defect most frequently encountered in medical examination is related to vision; next come enlarged tonsils and adenoids, skin diseases and malnutrition. Only 1 per cent of the children now suffer from malnutrition. A great improvement has taken place. The better dress of the children is both a cause and an effect. No self-respecting school girl would now accept an accusation of uncleanliness without shame. There has been a revolution in cleanliness and dress, which has been conducive to health. The improvement in nutrition has been brought about partly by supplementary school feeding and partly by general care of the child at home and at school. When the school medical service began in 1907 there was approximately 10 per cent of malnutrition in the London schools. During 1930 in London, excluding special schools, 4,760,004 milk meals and 776,192 cod liver oil meals were given on the advice of physicians, the cost being recovered from the parents in nonnecessitous cases.

MORE OPEN AIR AND SUNSHINE

The introduction of the open air school for debilitated children has been of great service but more sunlight and open air are required for every child, sick or well. The principles of the open air school must be applied to the normal child. Progress in this respect is shown by the fact that 80 per cent of the building plans submitted to the board of education include proposals for throwing open to the outside air whole portions of class rooms and for admission of more sunlight than was formerly deemed necessary.

PARIS

(From Our Regular Correspondent)

Nov. 4, 1931.

The Congress of Pediatricians

The seventh Congrès des pédiatres de langue française was held recently in Strasbourg, under the chairmanship of Professor Rohmer. The first topic on the program was "Alimentary Fevers in Infants." Professor Schaeffer considered the various theories advanced in explanation of these fevers. He regards as the true cause the increase of the metabolism of substances that fix water, and more particularly the proteins. He maintains that there is no alimentary fever without absolute or relative dehydration. It is possible that, as a result of dehydration, there develops an action of poisons affecting the regulatory nerve centers. With a diet rich in albuminoids, such as dry milk, the combustion of proteins liberates less water than the combustion of carbohydrates. The heat produced is greater and is eliminated through perspiration, which creates a need for water. At the same time, these proteins leave a large quantity of urea, which requires a heavy dilution for its renal elimination. Dried human milk produces less harmful effects than skimmed and dried cow's milk because it furnishes fewer proteins. During the discussion that followed, Coréan and Vallette of Strasbourg expressed the view that in the mechanism of alimentary fever not only the excess of proteins but also the excess of sodium chloride played a part.

René Mathieu and Jean Chabrun considered in turn the various foods that may provoke fever in the infant: dry milk, buttermilk, condensed milk, ordinary milk whey, and sweetened dry milk.

The second topic concerned cerebral tumors in children. In a comprehensive paper presented by Mr. Heuyer and Mlle. Voigt, the clinical signs of such tumors were considered in detail: eye disorders, symptoms of paralysis or convulsions, modifications of tonus, headache, and changes of the cerebrospinal fluid. For the diagnosis, two signs are essential: choked disk and positive roentgenographic observations. The next step is to locate the tumor, which is often difficult in children and requires the use of ventriculography. The surgical treatment of these tumors was discussed by Clovis Vincent, David and Puech, who described their operative technic and the results secured by the surgical treatment of craniopharyngiomas (tumors developing from the remnant tissues of Rathke's pouch). An attempt should be made to extirpate the cystic pocket in toto, although that is often impossible. The statistics of their personal cases reveal a mortality of 25 per cent for this delicate operation.

The third topic, "The Concealed and Latent Types of Avitaminoses in Infants and the Causes of Their Appearance," was presented by Mr. Bertoye of Lyons. Among the causes he mentioned were defective diet, favorable terrane, the early age of the patient, and the activity of growth. Scurvy, beriberi, xerophthalmia and rickets never appear suddenly but are preceded by unobtrusive prodromal symptoms, which the speaker described with the greatest detail. He then reviewed the modes of treatment and the foods that may have deficient vitamins; also the medicaments (viosterol) and the physical agents (ultraviolet rays).

An International Council of Scientific Societies

During the period immediately following the war, the scientists of the allied countries created an organization called Conseil international des recherches scientifiques, the seat of which was at Brussels. Under the chairmanship of Mr. Emile Picard, the council developed some activity, but, with the return of peace, it was impossible to maintain its exclusive character. It became transformed, and simultaneously with Mr. Picard's communication to the Academy of Sciences stating that fact, he resigned as the president. The new organization, which will be called "Conseil international des unions scientifiques," will constitute a federation of the numerous international societies that specialize in various researches. Its chief purpose will be to appoint joint commissions that will pave the way for understandings between the various countries with respect to researches of common interest. The president is Professor Hale, astronomer at the Mount Wilson observatory, California, and one of the two vice presidents is General Ferrié, member of the Academy of Sciences in Paris.

Tubercle Bacilli in Tuberculous Pleural Effusions

Search for tubercle bacilli in pleural effusions has given heretofore such uncertain results that most microbiologists have become discouraged and have finally been inclined to admit that the fluid of these effusions exerts a lysing action on the bacillus. Karwacki, using ordinary culture mediums, succeeded in finding tubercle bacilli only three times, although he examined 33 liters of fluid. Schlossmann succeeded a little better by using the Petron method. Professor Bezançon, in collaboration with his assistant Mr. E. Buc, has recently solved the problem. He observed that the pleural fluid immediately modified its hydrogen ion concentration through loss of carbon dioxide. It is therefore necessary to acidify slightly the culture medium. The medium he uses is composed of distilled water, to which are added 2 per cent of peptone, 5 per cent of glycerin, and 1 per cent of monobasic potassium phosphate and sodium phosphate. Several tubes are filled with from 2 to 3 cm. in height and a few filaments of cotton are added. The contents are sterilized at a temperature of from 110 to 115 C., and an equal quantity of pleural fluid is added. The tubes are well stoppered and are kept in a bath at an exact temperature (between 37 and 38 C.). The colonies appear in from three to four weeks, either on the threads of cotton, which were added to serve as their support, or at the bottom of the tube. They increase in volume in the form of arborescent prolongations, especially in the more aerated region of the surface. The bacilli appear in countless numbers, and presenting their usual characters as to form, acidoresistance and inoculability in the guinea-pig. The positive results are virtually constant, especially if one considers the pleural exudates of artificial pneumothorax.

Dr. Chompret Honored

The first university chair of stomatology was established in 1844, at the Faculty of Medicine in Budapest. In memory of Professor Arkovy, its most eminent occupant, from the scientific point of view, the Hungarian society of stomatology has created a gold medal to be awarded every three years, by an international committee, to the stomatologist adjudged the most eminent. The medal has just been awarded (for the first time) to Dr. Chompret, stomatologist to the Hôpitaux de Paris, at the Hôpital St. Louis, who will retire at the end of this year from active service. He was the founder and has remained the director of the principal dental school of Paris.

Creation of a Hematologic Society

A new scientific society has been created in Paris: the Société d'hématologie. It numbers 250 charter members—French and foreign. Professor Hayem was chosen honorary president. Professor Chauffard was elected president; Professors Vaquez, Achard and Jolly, vice presidents; Dr. Chevallier, general secretary. The society will meet once a month in a conference room at the Hôpital de l'Hôtel-Dieu and will publish regularly scientific articles submitted by its members.

BERLIN

(From Our Regular Correspondent)

Oct. 26, 1931.

The German Pediatric Society

At the congress of the Deutsche Gesellschaft für Kinderheilkunde, held recently in Dresden, the Bonn pediatrician Goett discussed "The Physiology and Pathology of Sexuality in the Child." He surveyed the origin and development of the sex impulse in the child. Even in childhood there may be erotic exhibitions that cannot be entirely separated from sex consciousness. In abnormal paths of development, associations with a given emotion or a certain situation frequently assume an etiologic rôle. In most cases the prognosis of sexual disturbances in children is good. Aberrations of the sex impulse are frequently replaced after puberty by normal trends. Matters pertaining to home training are of especial importance in that connection.

Friedjung of Vienna, who has made a special study of the sexuality of the child, considers the manifestations from the standpoint of a follower of Freud. It is difficult to distinguish sharply between the normal and the abnormal in the life of the child. In connection with manifestations of budding sex impulse in the child, great caution must be exercised in the matter of ethical control. Great tact and a clear understanding of the situation are required in order to know when to impart information and what information to impart.

The second topic, "Active Immunization Against Diphtheria," constituted the high level of the session. According to the hygienist Bürger of Königsberg, the morbidity can be reduced by active immunizing measures to one fourth and possibly even to one tenth of the previous status. The case mortality cannot be influenced to any marked extent by the methods that are available. The duration of the immunity secured and its protective value in times of severe epidemics need to be investigated further. Legislative regulation of vaccination against diphtheria is not to be considered under present German conditions, and in the light of our present knowledge would be premature. The proper time for vaccination appears to be during a lull between outbreaks, since it requires months to develop immunity. Vaccination should be confined to young children (without reference to their susceptibility to toxins), to the toxin-sensitive children of the primary class in school, and to the care-taking personnel of the departments for infectious diseases.

Schick of New York reported on the extensive trials of vaccination against diphtheria carried out in the United States. He advised that Germany should hold fast to thoroughly proved procedures, and warned against drawing far-reaching conclusions from small series of observations. His statistics of diphtheria cases in the United States reveal, in the regions with active immunization, a marked reduction of the morbidity, after giving due allowance to the tendency toward spontaneous decline, such as is observed in various regions. Loss of immunity occurs occasionally. Children under 6 years of age are more difficult to immunize than older children. In infants favorable results have been secured with the Ramon anatoxin (toxoid). For older children, subneutralized toxin is commonly used. He showed how it was possible through an extensive campaign of publicity to carry out immunization against diphtheria in practically all the children of New York City.

Goebel of Halle reported observations in a home for infants. When using the antitoxin remedy put out by the Behringwerke, a triple inoculation was necessary to secure adequate protection, a double inoculation proving ineffective.

The central idea of the paper presented by Hottinger of Düsseldorf was the question as to why some persons inoculated do not acquire adequate immunity and wherein the nature of malignant diphtheria lies, in which the antitoxin has no sure effect. No essential progress in the treatment of these cases has previously been achieved. He thinks that a familial predisposition, together with certain peculiarities of the diphtheria bacilli and the association with other pathologic agents, plays a part in the origin of malignant diphtheria. Schlossmann emphasizes the probability that a change in the epidemiologic properties of the causative agents has come about. That malignant diphtheria is more prevalent than formerly cannot be questioned. The fact that the researches of Kolle and at the Behringwerke have revealed no changes in the toxin formation of the strains shows that the degree of toxin formation alone does not cause the malignant condition. He is opposed to the idea that the observations made thus far furnish satisfactory evidence for the success of active immunization.

Several speakers emphasized the worthlessness of the Löwenstein ointment. Reserved statements were made with regard to the practical value of the Schick test, since in many cases a correct idea of the defense forces cannot be obtained. In addition to the official topics, many different fields of pediatrics were treated in numerous independent communications.

Care of Persons Who Are Hard of Hearing

In a time when the greatest economy must be exercised in all departments, it appears to be more important than usual to render needed aid to handicapped persons and to put them in such a condition that, in spite of their physical infirmities, they can support themselves. The welfare service for the benefit of deafmutes and persons hard of hearing has been gradually extended throughout the German *reich.* In 1871 there were 9.7 deafmutes for each 10,000 inhabitants; in 1900, 8.6, and in 1925-1926 there were 7.3. The last mentioned figure includes also those who are only deaf. The rural districts have the larger percentage of deafmutes. In about 10 per cent the disorder is congenital; in 21 per cent scarlet fever is the cause; in 10 per cent, spinal meningitis; in 19 per cent, suppurations of the middle ear, and in 11 per cent, accidents. The retrogression of deafmutism is doubtless to be sought in the energetic combating of infectious diseases and in the general progress of medicine. The welfare service in aid of deafmutes is based on the statistics concerning the deaf and dumb children who enter each year the group in which school attendance is compulsory. The school physicians examine every case that comes to their notice and make a report on a prescribed blank. The training and education of the deaf and dumb children who are found adapted to such instruction are given in the institutions for deafmutes, of which there are at present seventy-three in the German *reich.* These institutions belong to the various *länder* and the communes, or they are supported by societies or organizations, some connected with the churches and some of a lay character. The instruction, which is given by specially trained teachers, extends first to the spoken language, the articulate language replacing as far as possible the former sign language. The instruction includes all the branches that aid the pupil in becoming a useful citizen. In addition, the pupils receive a thorough industrial training in classes taught by specialists and artisans, who are given special awards in recognition of any marked skill shown by their pupils. At the present time, 20 per cent of the deafmutes in Germany and 7 per cent of those who are deprived of only their hearing are receiving institutional care. In addition to the private institutions for deafmutes, about forty German societies participate in the welfare work, which includes watching over the economic welfare of adult deafmutes. A self-help organization exists as the Reichsverband der Gehörlosen Deutschlands. The physical education of deafmutes is in the hands of the Reichsausschuss Deutscher Taubstummenverbände für Leibesübungen. Two thirds of the German deafmutes use the spoken language;

almost half of them use the written language, while less than one fourth make themselves understood with the aid of signs. The welfare service in aid of persons hard of hearing is of more recent origin. The state has established for their benefit several special schools and continuation schools. The instruction in these schools is given in accordance with the so-called *hörschmethode*, or a suitable combination of hearing and seeing. Recently a special service has been created with a view to protecting deafmutes and persons hard of hearing in court proceedings.

BUCHAREST

(From Our Regular Correspondent)

Oct. 17, 1931.

The New Law and the Adulteration of Food

Regulations in the new health law embrace all kinds of foodstuffs. The law forbids the sale or manufacture of decayed or harmful foods and beverages. Food articles must be named after the raw substance used in their manufacture, and this name must be used not only in advertisements, samples and invoices but also on the containers. It is strictly forbidden to use names which do not correspond with the true substance of the food or beverage.

Drinking water served in cafés and restaurants must be light, colorless, free from odor, and devoid of any by-taste. Its temperature must not exceed 15 C. (59 F.) in any part of the year. Besides this, it has to contain carbon dioxide. Soda water and lemonade factories can be established only with the authorization of the magistrate. Especial authorization is needed for making portable lemonade and other refreshing beverages. In the manufacture of lemonade, only well refined sugar may be used. Syrups made of sugar must consist of two parts of sugar and one part of boiled water.

Artificial mineral waters must contain the same constituents as the respective natural water: carbon dioxide may be added. Artificial mineral waters should be prepared only according to the formulas approved by the ministry of health. Only table mineral waters may be manufactured, while medicamentous, that is curative, waters must not be made artificially, excepting bitter waters.

For the cooling of foods and beverages, natural and artificial ice may be used. Artificial ice must be prepared from pure drinking water. Natural ice can be used for cooling only after a preliminary water analysis. Artificial ice may be in direct touch with the food articles, while, if natural ice is used, the articles have to be wrapped in some water-proof covering.

Milk can be sold only by licensed dealers. The license is issued by the veterinary section of the village magistrate's office to those who milk their own cows. Milk can be sold in aluminum or zinc containers.

As to yeast, only spirit or beer yeast can be sold to the public. The blending of the two kinds is prohibited. On the wrapper a label must be fixed, stating whether the product contains beer yeast or spirit yeast.

For preserving meat, the only method permissible is refrigeration. It is forbidden to sell the meat of sick animals or to use decayed vegetables for making preserves or for coloring them, or to use starch in their preparation. As to vinegar, the lowest acetic acid content allowed is 3, and the highest, 15 per cent. Vinegar essence must contain 80 per cent acetic acid.

Merchants unwittingly selling adulterated or impure foods or beverages are liable to a fine of from 1,000 to 3,000 lei, while those who sell such articles knowingly are fined from 2,000 to 10,000 lei. For a second offense the fine is doubled. If the adulteration was committed by one who brought the article into traffic, the fine is from 5,000 to 10,000 lei, and in case of a second offense it is double, with imprisonment from one to three months. In case adulterated or decayed or impure food articles cause death, a fine of from 10,000 to 50,000 lei is imposed, with imprisonment from one to three years, independently from the indemnity fixed by the civil court. Adulteration of milk involves a fine of from 2,000 to 5,000 lei.

According to the law, these regulations are enforced by the public health inspectors, the county physicians-in-chief, medical officers of cities and towns, and the chiefs of the state laboratories. The chiefs of custom houses are obliged to control all food articles imported from abroad and have to send samples for analysis to the laboratory of the ministry of health.

A special section of the law deals with the requirements in regard to cleanliness and hygiene in restaurants, cafés and all localities where foods are served. The agents of the public health office in towns and cities have to visit all such places twice a year. The new law is already in force.

Bachelor and Spinster Tax in Rumania

In view of the great infant mortality rate and the great spread of the so-called social diseases, the Rumanian government felt impelled to draft a bill taxing all bachelors and spinsters. According to the first chapter of the law, the taxes to be paid by bachelors and spinsters will be turned over for the subsidizing of hospitals, dispensaries and other social institutes. The second chapter asserts that the terms bachelor and spinster apply to all single men and women between the ages of 30 and 65. Exemption is made in the case of clergymen, monks and those who are not permitted by the civilian law to marry. The tax is fairly low: up to 35, the annual fine is 200 lei ($1.22) up to 50, it is 500 lei ($3.05) and beyond 50, the fee is 300 lei ($1.83). The last chapter of the law deals with the fines to be imposed on those who want to evade the payment of these taxes under some false pretexts. An interesting item of this law is that in factories, warehouses and other establishments the employer is responsible for the notification of his bachelor and spinster employees.

Trachoma in Rumania

In the prophylaxis and treatment of trachoma, the army did great service in prewar times. The examination of the eyes of recruits resulted in the discovery of trachoma cases. If a lad was found to have trachoma he was sent to a trachoma hospital, where he was kept as long as the condition was infectious. A physician experienced in the treatment of trachoma was sent to the district from which the lad came, and all the inhabitants there were examined. Those suffering from trachoma were sent to a hospital or, if this was impossible, put under treatment by the village doctor. If the number of trachoma patients in a district was too great, a trachoma specialist was entrusted with the treatment. The lads with trachoma were admitted into the army only after one year's absolute freedom from any symptoms of trachoma. In this manner, the number of trachoma cases was kept at a low level prior to the war. During war times, the invasion of foreign troops, the immigration of Russians, the annexation of Bessarabia, the return of war prisoners and the return of imperfectly healed soldiers from the field added much to the spread of trachoma.

In 1921, Dr. V. Cerkez examined all the children in an orphanage in Jassy and found that 47 per cent were trachomatous. In a school for girls in Jassy, 6 per cent of the children suffered from trachoma. In the outpatient department of the Jassy eye hospital, 580 trachoma patients were treated in 1928, 1929 and 1930, representing 3.5 per cent of all patients. Follicular conjunctivitis, though difficult to distinguish from trachoma, remains a well characterized and outlined pathologic entity; only 5 per cent of the follicular cases become in time trachomatous. In order to prevent relapses, complete cures must be insisted on: after an operation, the upper eyelid must not be turned up sooner than the eighth day. In respect to prophylaxis in Rumania, Cerkez urges the legislative carrying out of early diagnosis, regular eye examination of school children and workmen, the erection of special trachoma hospitals and dispensaries, migratory dispensaries for the village folk, compulsory notification and treatment, eye examination of all immigrants and, finally, the organization of propaganda work.

Prohibition of Advertising

The Medical Chamber of Rumania started activity some weeks ago, and its good work is already noticeable. While formerly the Bucharest daily papers were congested with the advertisements of venereal specialists, at present only some outsiders try to attract public attention by their obscene advertisements. The medical chamber is impotent, however, against the objectionable advertisements of some unscrupulous chemical manufacturers. These cause tremendous harm to the doctors because in the present critical financial circumstances even the intelligent classes are inclined toward self healing, evading consultation with the doctor and preferring to spend the money thus saved to buy an advertised cure. The medical association wants to appeal to the press syndicate, requesting nonprofessional papers to be more critical in accepting advertisements. At the same time the medical association will request its members who are in parliament to intercede in the chamber of deputies against the fraudulent advertising of worthless proprietary medicines.

ITALY

(From Our Regular Correspondent)

Sept. 15, 1931.

The Institute of Marine Biology

The Istituto italo-germanico di biologia marina was recently dedicated at Rovigno, Istria. The origin of the institute dates back to a zoological station established at Rovigno by Germany in 1891, and which, after the war, was turned over to the Comitato talassografico italiano. A recent agreement entered into by the governments of Italy and Germany provides that the institute shall be regarded as the joint property of the two countries, which will share equally the current expense of its administration and will have an equal number of persons on its staff. Professor Sella has been appointed codirector for Italy and Professor Stener for Germany. The institute has important collections of fish, mollusks and crustaceans, and there are rare specimens of Gambusia, starfish and polyps. Researches have been made on ocean depths, ocean currents and water pressure at various ocean depths.

Meetings of Societies

The Società medico-chirurgica of Pavia met recently under the chairmanship of Professor Ferrata. Professor Viola reported the results of his research on contractility of the spleen. The author, using three different stimuli (the action of cold, muscular work, the action of epinephrine), observed attacks of fever of a malarial type produced in man. He attributed the attacks to contraction of the spleen, the physiologic importance of which he emphasized. Callerio reported certain details regarding several clinical cases of tumor of the biliary passages diagnosed during anatomic studies on cadavers, and called attention to the importance in such cases of determining the percentage of fat substances in the feces, for the localization of the lesions along the biliary passages. Bianchi and Callerio spoke on the influence of the bacteriophage on the hemolytic action of the typhoid bacillus. From their studies on 166 typhoid strains isolated from the blood of patients, the authors reached the following conclusions: 1. There is a large percentage of typhoid strains (about 1.8 per cent) that, from the time of their isolation, possess in varying degree an evident hemolytic action for the red corpuscles of sheep. 2. With the bacteriophage one can show those strains to be hemolytic that do not appear spontaneously as such. 3. The phenomenon of hemolysis that is demonstrable with the typhoid bacillus by means of the bacteriophage appears closely associated with the development of the bacteriophagic action itself on the micro-organism. 4. It is not always possible to demonstrate the presence of a bacteriophage in strains possessing the hemolytic property from the time of their isolation from the patient. 5. Under the conditions of bacterial lysis produced by the bacteriophage in the typhoid bacillus, the authors did not succeed in demonstrating the production of soluble hemolysins. 6. Concerning the interpretation of the phenomenon, the authors are inclined to hold that the bacteriophage does not confer on the micro-organism a property previously nonexistent, but that it strengthens or enhances a capacity that the typhoid bacillus possesses normally, although in only a moderate degree.

Bignami spoke on extrabulbar ulcer of the duodenum, describing the radiologic manifestations on the basis of his records of seven personal cases and the few contributions on the subject contained in the literature. He remarked that, as is the case with ulcer of the stomach and of the bulb, the radiologic picture presented in extrabulbar ulcer is rather uncertain. He stated that, also in the diagnosis of extrabulbar ulcer of the duodenum, absolute reliance can be placed only in the niche sign, whereas it is not usually advisable to ascribe to other manifestations more than secondary diagnostic value and to consider them noteworthy only when complete and in harmony with clinical data.

Pellegrini discussed tuberculosis of the mediastinal glands in the adult, describing cases of tuberculous adenopathy of the mediastinum with many caseous glands of the infantile type, without tuberculous localizations in other organs.

At Brescia there was held also a meeting of the Società medico-chirurgica, under the chairmanship of Professor Baratozzi. Professor Mazzardi described a case of metastatic ophthalmia, with special involvement of the cornea, in a subject with acute osteomyelitis of the femur, together with empyema. Fifteen days after the appearance of the osteomyelitis there began disturbances affecting the left eye, which led to its enucleation owing to the presence of panophthalmia. The bacteriologic and cultural examination of the exudate taken from the empyema and from the cornea revealed the presence of Staphylococcus pyogenes with like morphologic, cultural and staining characteristics. The speaker excluded exogenic keratitis, toxic keratitis and internal ulcer, and decided in favor of metastatic origin.

Pellegrini spoke on the seroprophylaxis and the serotherapy of purulent peritonitis. For the past year he has applied this method systematically in peritonitis resulting from appendicitis and from perforation of the digestive tract, making use of anticolibacillary serums combined with antigangrene serums. He cannot as yet give a final opinion, but he thinks that serotherapy has a favorable effect. Even though such simple treatment should have to be regarded as supplementary to operative treatment, it would still mark a step in advance.

Pellegrini, in speaking on modifications in the technic of appendicectomy, considered the lumbar incision, the formation of the "tobacco bag" before resecting the appendix, and resection with the electric knife. Certain variations that are advantageous only in special cases cannot be recommended as normal methods.

Anophelism and Malaria in the Province of Novara

At a recent session of the Società di cultura medica novarese, Dr. Frongia spoke on the present status of anophelism and malaria in the province of Novara, describing the transformation of rice fields, the index of malaria, the density of anophelism and the classification of Anopheles, the resistance of Anopheles of the rice fields of Novara to malarial infection, and the transmission to Anopheles of malarial infection in man. The speaker concludes that the rice fields of the province of Novara have changed their character during the past twenty years, having been transformed by the rotation of crops and more intensive cultivation. Malarial infection has gradually diminished and conditions today are much improved. The improvement cannot be ascribed to a diminution in the number of Anopheles, as these are present in great numbers in the rice regions of Novara. Of 100 specimens, 94 are Anopheles claviger or Anopheles maculipennis, 4 are Anopheles superpictus, and 2 are Anopheles pseudopictus. No specimens of Anopheles bifurcatus were found. Anophelism sine malaria may be ascribed, in all probability, to the fact that Anopheles of the rice fields, owing to some organic transformation, has lost to a great extent its susceptibility to malarial infection on being exposed to the malarigenic hematozoon through biting a person harboring that organism. Experimentally, it proved impossible to infect the mosquitoes of the Novara rice fields with malaria through contact with a malarial patient.

A School for Ametropic Pupils

In Brescia there has been functioning for two years a special school for ametropic pupils, to which are admitted children, belonging to the second to fifth elementary grade, who are affected with serious myopia, hypermetropia, astigmatism, strabismus, or sequels of diseases of the anterior segment of the bulb or of the deep membranes, which reduce the vision to less than 3/10. The children supplied with glasses give immediate evidence of improved vision, applying themselves to their studies with less fatigue and greater profit, the vomiting spells, the headaches and the other disturbances produced by asthenopia being eliminated. On an average, visual acuity in the children supplied with lenses increased from 3/10 up to 7/10. Another advantage was the recovery from blepharoconjunctivitis due to defects of vision. A third advantage is the treatment of strabismus and of amblyopia ex anopsia by means of exercises. Increases of visual acuity amounting to 6/10 were observed.

Dangers of Malaria Treatment of Dementia Paralytica

Addressing the Accademia delle scienze medico-chirurgiche of Naples, Professor Romano described the possible dangers associated with the treatment of degeneration of the neuraxis. The untoward effects that may arise are not to be ascribed solely to the reduced organic resistance of the patient or to an error in the choice of the strain of malaria but chiefly to a third cause more important than the two preceding. This consists in the fact that, as a result of inoculation with asexual malaria micro-organisms, with an incomplete biologic cycle and with a tendency to die or to be destroyed, malaria is not produced in the organism but a status malaricus. The toxemia induces in the organism already weakened disease symptoms that are not always foreseeable or controllable. In concluding, Professor Romano expressed the view that in a patient treated by malarialization there may develop a true toxinfection with a special type of septicemia. And since it is held that the mechanism of this therapeutic process is based on the action of febrile heat and on the destruction of neurotropic organisms, the speaker suggests that physical means be adopted for that purpose, as, for example, diathermy.

In the discussion following Professor Romano's paper, Professor Colucci pointed out that by attenuating the attacks of malaria with small doses of quinine, the dangers of malariotherapy are much lessened. He considered the attitude of Professor Romano pessimistic and remarked that the beneficent effects of malariotherapy do not lie solely in the elevation of temperature. Castronuovo held that by choosing carefully the strain of malaria to be inoculated one can always regulate the course of the malaria and check it when it appears desirable. Malariotherapy exerts furthermore a genuine immunizing biologic stimulus of value for direct defense against syphilitic spirochetosis. Seiuti considered malarialization the best method for the treatment of dementia paralytica provided it is applied early. But there are other methods that may prove efficacious, such as sulphotherapy and a combination of arsphenaminotherapy and reinjection of the patient's own spinal fluid. It is indispensable that pyretotherapy be followed by an energetic specific antisyphilitic treatment.

Professor Romano in reply reaffirmed his view that inoculation with atypical malaria during the incompleted asexual cycle (which he terms "wagnerism") is different from true malarialization, which must be the result of biologically perfect malarial inoculation. He contends that in some cases wagnerism may be more harmful than malarialization itself.

MADRID

(From Our Regular Correspondent)

Nov. 6, 1931.

Early References to the Circulation of the Blood

Dr. N. Mariscal recently lectured before the Academia Nacional de Medicina of Madrid on the history of medical discoveries, with especial reference to the share of the Spanish medical profession in the discovery of the circulation of the blood. The speaker made the following statements: In "De Trinitatis erroribus," the first book of Michael Servetus (Miguel Servede), which was published in Basel in 1531, there appears a description of the circulation. "Christianismi restitutio," written by the same author and published in 1553, is a compilation of his previous books. There is a popular belief that the books of Servetus were destroyed, only two copies of "Christianismi restitutio" being saved, one of which is in Vienna and the other, partly burned, in Paris. These are not the facts, however, since the Biblioteca Nacional of Madrid obtained from a Quaker several copies of his works, among which were two copies of "Christianismi restitutio" and one copy of "De Trinitatis erroribus." Matteo Realdo Colombo, Andrea Cesalpino, Carlo Ruini and Eustachius Rúdius probably obtained their ideas on the circulation from Servetus. Baron Leibnitz gave Servetus (whom he termed "the famous anti-Trinitarian heretic doomed by Calvin in Geneva") credit for having been the discoverer of circulation. Andrés Laguna, in 1535, published in Paris his so-called anatomic method in which, while speaking of the contractions of the heart, he said: "This is a movement which is a property of the heart without any connection with the nervous system, since, if the nerves and the arteries originating in the brain are ligated, the systole and the dyastole continue." In 1542, Luis Lobera de Avila wrote: "The heart has two ventricles, right and left. In the right ventricle there enters a large vein (the vena cava), which brings the blood to the heart and originates a large vessel (the pulmonary artery), which carries the blood from the heart to the lungs. In the left ventricle there enters a large vessel (the pulmonary vein), which brings blood to the heart and originates a large artery (the aorta), which carries the blood all over the body." Francisco Matías Marti of Valencia, in 1616, twelve years before Harvey's book appeared, wrote thus: "The heart seems as if it were divided into right and left halves, to each of which an auricle and a ventricle, with alternate movements, correspond. The first movement of the heart originates in the right auricle, which, by means of a contraction, expels the blood which it receives from the vena cava to the right ventricle. The contraction of the ventricle, in turn, forces the blood to the pulmonary artery, from which it goes to the lungs, where it is subject to a process of purification while in contact with the air which is there by inspiration; and, once arterialized, it returns through the pulmonary vein to the left auricle, whence, through the contractions, first of the left auricle and then of the left ventricle, it is forced to the aorta, from which all the parts of the body are supplied through many branches. Then the blood returns through the veins again to the vena cava and to the right auricle in a revolving uninterrupted movement of the blood."

The second part of Dr. Mariscal's lecture was a study of the life of Servetus, which was characteristic of the beginning of the Renaissance. In that time of fanaticism, Servetus's theological writings were condemned. He published his books either under his own name or under the pseudonyms of "Villanobus" or "Serveto de Reves."

In view of the data given by Dr. Mariscal, the Spanish Republic made the home village of Servetus a town.

Proposed Law for the Socialization of Medical Services

In several local political newspapers some of the most radical deputies have presented the following suggestion: "The undersigned deputies, having in mind the problems concerned with the high fees that are charged by physicians for attendance on the sick and for hospital attendance, in which problems are involved related to the conservation of the race, and having as grounds for their request article 42 of the Spanish constitution, suggest the following draft of a law: Article 1. All clinics, sanatoriums and hospitals should be socialized and considered as not having the right to charge any honorariums for attendance on the sick. While new laws for the national sanitation are being enacted, centers for the care of the sick, which at present are in active work, should continue under the regulations by which they have been functioning. Article 2. The practice of medicine and surgery and every one of its branches should be considered from a social point of view. Consequently, all physicians and surgeons should be considered as being public officers of the state. Their services, under proper regulations, should be regulated as follows: (*a*) In every city and town, a census of physicians and surgeons shall be made, noting their specialty if they specialize. The census will serve as a basis for a better distribution of social and public service from the medical profession. (*b*) Towns and cities, including their physicians and hospitals, will be divided into districts. Every physician should work in his district eight hours a day, during working days. Three hours of this time should be devoted to consultations in the physician's own office. The patients should be received in consecutive order. During the following five hours, physicians should attend patients unable to come to the office, who are either at home or in a hospital. Emergency calls should receive immediate attention, even if they are made outside working hours, and should be considered as of an extraordinary social value. Article 3. All physicians and surgeons will be paid by the government of the state. Their payment will represent a fixed amount equal to that given to state employees who receive the maximum payment in the town or city in which the physician lives and increased by a certain percentage for expenses of minors supported by him. Wives, who are considered equal to men and under their support, are not considered in that extra allowance. Article 4. Attendance given patients by physicians should be considered a service from state to community, the members of which, in order to pay for those services, should pay a double amount for their capitation fee. Article 5. On the date of publicity of this law, all obligations which hitherto were considered as imposing a duty on the patient to pay for medical or surgical attendance received, shall be abolished, and physicians shall be forbidden to receive any honorariums or charges representing a remuneration for services given to the patients. Article 6. In order to stimulate physicians to fulfil this social duty, every week the names of all physicians who during the week obtained a good record in their services will be read to the pupils in all the schools. Names of physicians who during the week gave extraordinary services will be placed on an honor roll list in the schools in order that their names may receive the homage of the social solidarity of their countrymen."

Marriages

Michael J. Lorenzo, Bridgeport, Conn., to Miss Elenora Martha Brownell of Northville, N. Y., August 8.

Florentine Peter Herman to Miss Lucille S. Williams, both of West Palm Beach, Fla., September 25.

Clarence C. Holcomb, Troy, N. Y., to Miss Marie V. Rogers of Washington, D. C., November 10.

Roland E. Kalmbach, Lansing, Mich., to Dr. Lydia L. Lightring of East Lansing, September 12.

Donald S. Fraser of Panama City, Fla., to Miss Margaret Van Cleve of Lynn Haven, October 8.

Kenneth J. Kemp, Columbus, Ohio, to Miss Katherine C. Daniels of New York, November 27.

Harry A. Schwartz, Long Island, N. Y., to Miss Sylvia Marcus of Brooklyn, November 1.

James F. Curry, Dunnellon, Fla., to Miss Neva Williams at Inverness, August 1.

Bernard Frazin to Miss Beatrice Minnie Hurwich, both of Chicago, October 1.

Luther H. Kelley, Atlanta, Ga., to Miss Louise Curtis, November 13.

Deaths

Walter Henry Robilliard, Faribault, Minn.; Hahnemann Medical College and Hospital, Chicago, 1884; an affiliate Fellow of the American Medical Association; member of the Radiological Society of North America; past president of the Rice County Medical Society; for ten years member of the board of education; on the staffs of the State School for the Deaf and St. Lucas Deaconess Hospital; aged 70; died, November 1, of pneumonia.

William F. Mitchell, Shelby, N. C.; University of Maryland School of Medicine, Baltimore, 1889; member of the Medical Society of the State of North Carolina; past president and secretary of the Cleveland County Medical Society; formerly member of the county board of health; on the staff of the Shelby Hospital; aged 63; died, October 27, of cerebral hemorrhage.

Joseph Clark Stephenson ⊕ New Orleans; Rush Medical College, Chicago, 1925; member of the Oklahoma State Medical Association; professor of anatomy, Louisiana State University Medical Center; formerly professor of anatomy, University of Oklahoma School of Medicine; aged 45; died, November 10, of spinal meningitis.

Benjamin B. Wheeler ⊕ Charleston, W. Va.; Louisville (Ky.) Medical College, 1904; member of the American College of Surgeons; formerly superintendent of the McKendree (W. Va.) Hospital and on the staff of King's Daughters General Hospital, Beckley; aged 55; died, November 3, of carcinoma of the stomach.

Charles Vincent Hart ⊕ Major, M.C., U. S. Army; Jefferson Medical College of Philadelphia, 1903; served during the World War; entered the Medical Corps of the U. S. Army in 1920 as a first lieutenant and was made a major in 1930; aged 54; was killed, July 16, in an airplane accident.

Roland H. Stubbs, Waterford, N. Y.; Medical Department of the University of the City of New York, 1877; member of the Medical Society of the State of New York; for many years health officer of Waterford; aged 76; died, November 17, in the Leonard Hospital, Troy, of arteriosclerosis.

Charles Henry Harvey, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1893; member of the American College of Surgeons; formerly surgeon to the West Philadelphia Homeopathic and Belmont hospitals; aged 63; died, November 12, of bronchopneumonia.

Sidney Stewart Pugh, Mobile, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1889; member of the Medical Association of the State of Alabama; veteran of the Spanish-American War; aged 68; died, October 12, in New Orleans, of cerebral hemorrhage.

Charles Andrew Graham ⊕ Denver; University of Pennsylvania School of Medicine, Philadelphia, 1898; formerly associate professor of medicine, Denver and Gross College of Medicine; aged 60; died, October 22, in St. Luke's Hospital, of acute hemorrhagic nephritis.

Leonard Johnathan Hensler, Carrollton, Ill.; Vanderbilt University School of Medicine, Nashville, Tenn., 1908; member of the Illinois State Medical Society; served during the World War; aged 46; died, November 7, in St. Anthony's Hospital, St. Louis, of agranulocytosis.

Benjamin C. Logan ⊕ Morrilton, Ark.; Louisville (Ky.) Medical College, 1902; past president and secretary of the Logan County Medical Society; formerly county and city health officer; on the staff of St. Anthony's Hospital; aged 56; died, October 31, of heart block.

Reuben Nathaniel Palmer ⊕ Kenyon, Minn.; University of Minnesota Medical School, Minneapolis, 1926; formerly secretary of the Houston-Fillmore Counties Medical Society; served during the World War; aged 38; died, November 3, of heart disease.

James P. Tucker, Galveston, Texas; Texas Medical College and Hospital, Galveston, 1878; University of Louisville (Ky.) School of Medicine, 1885; aged 78; died, October 25, in the John Sealy Hospital, of acute pyelonephritis, cystitis and arteriosclerosis.

Cornelius H. Myers, South Bend, Ind.; Hahnemann Medical College and Hospital, Chicago, 1877; member of the Indiana State Medical Association; aged 79; died, October 31, in the Epworth Hospital, of injuries received when he was struck by an automobile.

John Newton Killough, Birmingham, Ala.; Kentucky School of Medicine, Louisville, 1887; member of the Medical Association of the State of Alabama; visiting physician to the Alabama Boys' Industrial School; aged 66; died, November 2, of carcinoma.

George W. Steward, Jerusalem, Ohio (licensed, Ohio, 1896); president of the Monroe County Medical Society; formerly member of the state legislature and member of the county board of health; aged 83; died, in November, of cerebral hemorrhage.

Robert Adoniram Segrest, Port Gibson, Miss.; Memphis (Tenn.) Hospital Medical College, 1903; member of the Mississippi State Medical Association; aged 51; died, October 31, in the Jackson (Miss.) Hospital, of carcinoma of the right lung.

William Albert Galloway, Xenia, Ohio; Medical College of Ohio, Cincinnati, 1890; member of the Ohio State Medical Association; on the staff of the Ohio Soldiers and Sailors Orphans Home; aged 71; died, November 7, of heart disease.

Columbus C. Black, Austin, Texas; Missouri Medical College, St. Louis, 1882; member of the State Medical Association of Texas; aged 75; died, August 28, in a local hospital, of hypostatic pneumonia, arteriosclerosis and chronic myocarditis.

John Emison Pack, Georgetown, Ky.; Bellevue Hospital Medical College, New York, 1873; formerly mayor of Georgetown, member of the state legislature, and the county board of health; aged 82; died, October 30, of cerebral hemorrhage.

Thomas Nathaniel Jackson, Jr., Athens, Ga.; Boston University School of Medicine, 1924; on the staffs of the Athens General Hospital and St. Mary's Hospital; aged 34; died, November 8, of myocarditis and pulmonary tuberculosis.

Harry Allan Spangler ⊕ Carlisle, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1892; served during the World War; aged 65; on the staff of the Carlisle Hospital, where he died, November 5, of cerebral hemorrhage.

Samuel L. Rucker, Moneta, Va.; University College of Medicine, Richmond, 1897; member of the Medical Society of Virginia; aged 60; died, October 4, in the Jefferson Hospital, Roanoke, of perforated gastric ileus and peritonitis.

Robert James Gillespie, Salyersville, Ky.; University of Louisville School of Medicine, 1912; director of the health department of Magoffin County; aged 43; died, November 2, in the Paintsville (Ky.) Hospital, of pneumonia.

George Wesley Kester ⊕ Grand Junction, Iowa; Drake University Medical Department, Des Moines, 1895; past president of the Greene County Medical Society; member of the school board; aged 62; died, November 4.

Charles Westlake Hoare, Windsor, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1888; formerly mayor of Walkerville and member of the board of education; aged 68; died, November 10.

Peter Harry Harmann, St. Louis; St. Louis College of Physicians and Surgeons, 1898; Barnes Medical College, St. Louis, 1900; aged 55; died, November 8, in the Missouri Baptist Hospital, of carcinoma of the liver.

Philip R. Cleaver ⊕ Johnstown, Pa.; Medico-Chirurgical College of Philadelphia, 1890; aged 64; on the staff of the Mercy Hospital, where he died, November 5, of embolism, following an operation for gallstones.

Amos F. Hamman ⊕ Long Beach, Calif.; Rush Medical College, Chicago, 1903; served during the World War; on the staff of the Seaside Hospital; aged 57; died, October 28, in Chattanooga, Tenn., of heart disease.

Charles Levin ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1905; on the staff of the Beth David Hospital; aged 53; died, November 8, of chronic valvular heart disease.

David Young, Winnipeg, Manit., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1871; superintendent of the Manitoba Mental Hospital, Selkirk, 1886-1912; aged 84; died, October 16.

John T. Davis, Zanesville, Ohio; Medical College of Ohio, Cincinnati, 1872; member of the Ohio State Medical Association; aged 83; died, November 10, in the Bethesda Hospital, of edema of the lungs.

William George Edward Flanders, Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1888; aged 65; died, November 4, of arteriosclerosis, chronic nephritis and diabetes mellitus.

William D. Wheless, San Antonio, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1900; on the staff of the San Antonio State Hospital; aged 58; died, November 1.

Timothy O'Brien, Wahpeton, N. D.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1884; member of the North Dakota State Medical Association; aged 69; died, November 7.

Anthony J. Berresheim, Louisville, Ky.; Kentucky School of Medicine, Louisville, 1906; member of the Kentucky State Medical Association; aged 50; died, November 19, of encephalitis.

Daniel D. Murray ⊕ Duluth, Minn.; Albany (N. Y.) Medical College, 1881; formerly city health commissioner; aged 72; died, November 6, of coronary thrombosis and arteriosclerosis.

George Frederic Hunter Bartlett, Buffalo; University of Buffalo School of Medicine, 1883; aged 75; died, November 8, of carcinoma of the esophagus, arteriosclerosis and arthritis deformans.

John S. Bentley, St. John, N. B., Canada; McGill University Faculty of Medicine, Montreal, Que., 1904; for many years on the staff of St. John General Hospital; aged 53; died recently.

Edwin Putnam Gleason, Brockton, Mass.; Harvard University Medical School, Boston, 1892; aged 65; died, November 9, in the Brockton Hospital, of hypertension and heart disease.

James D. Scott, Holdenville, Okla.; Missouri Medical College, St. Louis, 1897; member of the Oklahoma State Medical Association; aged 59; died, October 31, of diabetes mellitus.

Frederick Roberts, Lake City, Ark.; University of Tennessee Medical Department, Nashville, 1907; aged 6[illegible]; died, October 17, in Brookland, of chronic nephritis and paralysis.

Max Mayo Miller ⊕ Arkansas City, Kan.; Northwestern University Medical School, Chicago, 1918; on the staff of the Mercy Hospital; aged 41; died, November 6, of heart disease.

George Neves, Colony, Okla.; Tulane University of Louisiana Medical Department, New Orleans, 1912; aged 49; died, July 16, in Thibodaux, La., of a self-inflicted bullet wound.

Allen Judd Nossaman ⊕ Pagosa Springs, Colo.; Keokuk (Iowa) Medical College, 1892; aged 64; died, October 9, in the Colorado General Hospital, Denver, of lymphosarcoma.

Benjamin William Dudley, Short Hills, N. J.; Columbia University College of Physicians and Surgeons, New York, 1904; aged 53; died, October 26, of cirrhosis of the liver.

Gilbert James White, Evanston, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; aged 74; died, November 12, in Picton, Ont., Canada, of myocarditis.

Terence Edward Darnelle, Detroit; Medical College of Indiana, Indianapolis, 1892; served during the World War; aged 62; died, November 4, in the Receiving Hospital.

Duncan A. Macdonald, Winnipeg, Manit., Canada; Manitoba Medical College, Winnipeg, 1907; on the staff of the Deer Lodge Hospital, St. James; aged 50; died, October 6.

Edwin Fancher, Middletown, N. Y.; Boston University School of Medicine, 1883; member of the Medical Society of the State of New York; aged 71; died, November 22.

Samson George Goode, Sidney, Ohio; Medical Department of the University of the City of New York, 1887; formerly justice of the peace; aged 86; died, October 23.

Maurice Mitchell Hallum, Carrollton, Ga.; Atlanta Medical College, 1898; for ten years member of the school board; aged 63; died, October 19, of cerebral hemorrhage.

William Stanton Winter, Port Arthur, Texas; Kansas Medical College, Topeka, 1898; member of the State Medical Association of Texas; aged 70; died, September 2.

Walter Ralph Stovall, Dallas, Texas; University of Louisiana Medical Department, New Orleans, 1878; aged 78; died, November 8, of carbuncle and heart disease.

Calvin M. Arnold, Harrisburg, Pa.; Homeopathic Medical College of the State of New York, 1867; also a druggist; aged 88; died, November 12, of cerebral hemorrhage.

Mary M. Kroetz, San Francisco; Hahnemann Hospital College of San Francisco, 1894; aged 74; died suddenly, October 28, of angina pectoris and arteriosclerosis.

George Washington Koenig ⊕ St. Louis; Washington University School of Medicine, St. Louis, 1904; aged 59; died, November 7, of a self-inflicted bullet wound.

George William Wood ⊕ Rockledge, Fla.; Georgetown University School of Medicine, Washington, D. C., 1894; aged 68; died, November 9, of morphine poisoning.

Daniel Shelley Solliday, Hillsboro, Va.; Medical College of Virginia, Richmond, 1900; member of the Medical Society of Virginia; aged 68; died, November 4.

Maxwell S. Simpson, Titusville, N. J.; Jefferson Medical College of Philadelphia, 1883; aged 75; died, November 12, in the Mercer Hospital, of heart disease.

L. Guy Ramaley, Oklahoma City, Okla.; Joplin College of Physicians and Surgeons, Joplin, Mo., 1882; aged 74; died, October 20, of carcinoma of the liver.

Amos Sheldon Edwards ⊕ Syracuse, N. Y.; Syracuse University College of Physicians and Surgeons, 1874; aged 89; died, November 6, of heart disease.

Herman C. Vetterling, San Jose, Calif.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 83; died, September 5, of chronic myocarditis.

Lewis Edward Pearce, Houston, Texas; Marion-Sims College of Medicine, St. Louis, 1896; aged 76; died, October 10, of bacteremia and septicemia.

Albert E. Kumpf, Hot Springs, S. D.; University of Minnesota Medical School, Minneapolis, 1928; aged 30; died, in October, of cerebral hemorrhage.

Joseph Xavier Ryan, Chicago; Loyola University School of Medicine, Chicago, 1924; aged 31; died, November 23, at the Mercy Hospital, of tetanus.

Fletcher Marcellus Barnes ⊕ El Paso, Texas; Southwestern University Medical College, Dallas, 1911; aged 54; died, August 19, of pneumonia.

Henry Stine Weigle, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1908; aged 45; died, October 4, of diabetes mellitis.

Louis A. Russlow, Randolph, Vt.; Baltimore Medical College, 1894; member of the Vermont State Medical Society; aged 65; died, September 21.

Rosa Douglas Wiss, Meridian, Miss.; Woman's Medical College of Pennsylvania, Philadelphia, 1895; aged 63; died, September 14, of myxedema.

Clarence Hudson Richardson, Brooklyn; Harvard University Medical School, Boston, 1912; aged 53; died, November 11, of lobar pneumonia.

George Henry Litsinger ⊕ Topeka, Kan.; University Medical College of Kansas City, 1900; aged 61; died, November 3, of agranulocytosis.

Herman A. Burkhart, Bethlehem, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1893; aged 69; died, July 27, of pneumonia.

Isaac Newton Devine, Groveton, Texas; Atlanta Medical College, 1880; aged 78; died, October 20, in Houston, of carcinoma of the rectum.

Fredric W. Haudenschield, Stewart, Ohio; Louisville (Ky.) Medical College, 1891; aged 73; died, November 12, in a hospital at Marietta.

Marion S. McCormick, Martinsville, Ind.; Medical College of Ohio, Cincinnati, 1882; aged 72; died, November 6, of cerebral hemorrhage.

John Selden Brandt, Ontario Center, N. Y.; Bellevue Hospital Medical College, New York, 1878; aged 76; died, September 20.

Harvey H. Bellwood, Long Beach, Calif.; Rush Medical College, Chicago, 1887; aged 83; died, October 23, of cerebral hemorrhage.

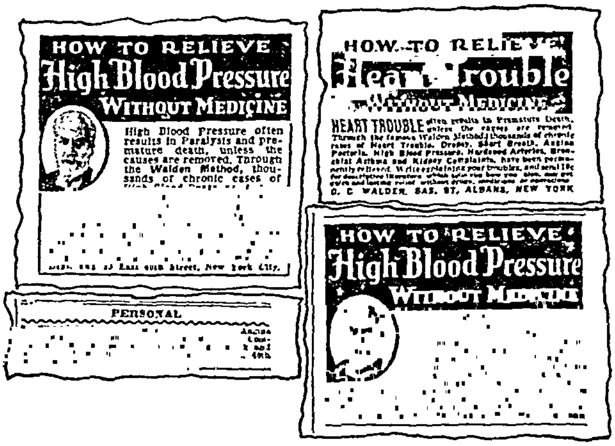
Bureau of Investigation

THE VON WALDENS

The Interesting Professional History of Rudolph von Walden and Some of His Family

"Professor" Rudolph von Walden is distinctly up-stage. He has presence; he has poise; he has a distinguished appearance even when he is photographed ("mugged") by the police. His sartorial elegance befits the millionaire that he is reported to be. His gray and luxuriant whiskers, parted meticulously in the median line, must in themselves be an asset of no mean worth. "Professor" von Walden is not and never has been a professor in any reputable institution of learning; he is not a physician; he is not licensed to practice medicine in any state in the Union. He has not, apparently, even the dubious honor of belonging to the chiropractic, osteopathic, naturopathic, seventh-son-of-seventh-son, or any of the other fifty-seven varieties of cults, that infest the American scene. Yet, newspapers have reported that it has been estimated that in his business of treating human ailments, he takes in between $6,000 and $10,000 weekly and has a personal fortune of between $500,000 and $1,000,000!

Rudolph von Walden is reported to have been born in Germany nearly 70 years ago and to have come to the United States in 1884. For some years he played up the "von" part of his patronymic. Then, the late unpleasantness made "vons" an advertising liability rather than an asset and Rudolph von Walden became R. V. Walden. He dubs himself a "scientist"; he used to admit that he was a "German scientist." There have been a number of "Walden Institutes" in different parts of the country. One of the first—if not the first—was the "R. von Walden Institute" of Cincinnati, said to be "Devoted to Diseases of the Heart, Angina Pectoris, Dropsy, Etc." Since that time, there have been Walden Institutes operated from New Haven and Hartford, Conn., New York City (various addresses), Atlanta, Ga., and St. Albans, Long Island.



HOW TO RELIEVE
High Blood Pressure
WITHOUT MEDICINE

High Blood Pressure often results in Paralysis and premature death, unless the causes are removed. Through the Walden Method, thousands of chronic cases of

HOW TO RELIEVE
Heart Trouble
WITHOUT MEDICINE

HEART TROUBLE often results in Premature Death, unless the causes are removed. Through the famous Walden Method thousands of chronic cases of Heart Trouble, Dropsy, Short Breath, Angina Pectoris, High Blood Pressure, Hardened Arteries, Bronchial Asthma and Kidney Complaints, have been permanently relieved. Write explaining your troubles, and send 10c for descriptive literature [illegible]

O. C. WALDER, [illegible] ST. ALBANS, NEW YORK

PERSONAL

HOW TO RELIEVE
High Blood Pressure

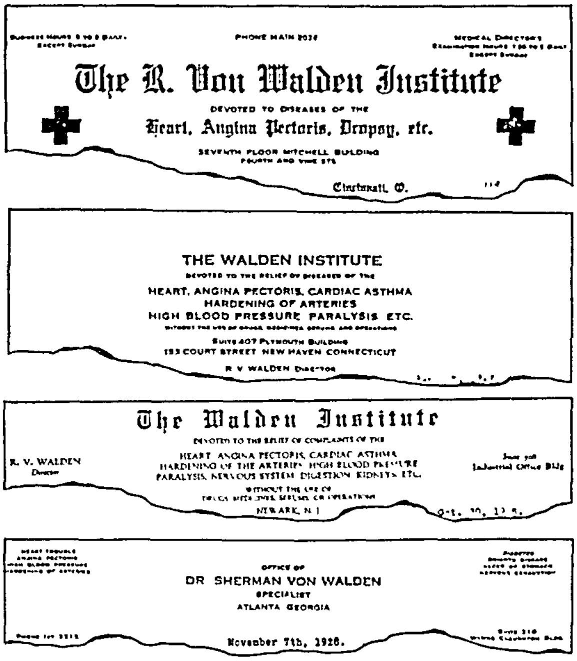
Business with the von Waldens is not what it used to be. A few years ago Rudolph was carrying full-page advertisements in metropolitan dailies; today the small display and even the classified advertisement columns must perforce suffice.

Rudolph von Walden has an interesting family. The newspaper files prove it. There is, for example, Gerald Walden, who for a time conducted a Walden Institute at Hartford, Conn., in connection with his father. Then, the papers reported that Gerald had sued his own father for alienating the affections of his (Gerald's) wife. Another son is Sherman von Walden, chiropractor. He, apparently, is in his father's good graces and conducts an "institute" at Atlanta, Ga. When Sherman was studying (!) chiropractic at Davenport, Iowa, he too figured in the press reports—and law courts—in a disgraceful case that, because it has no medical significance, need not be detailed here. A third son, Edward, variously described by the newspapers as the "Metropole Bandit" and the "Flappers' Friend," has distinguished himself in other fields of human activity, that of ordinary robbery.

Other members of von Walden's family that have figured in the newspapers are his wife and two daughters. All three are reported, at different times, as having been arrested for breaches of the peace, while, according to the daily press, Mrs. von Walden has, in addition, been sentenced to jail (execution suspended) for contempt of court. In March of this year (1931), it was reported that Mrs. von Walden, in her suit against Rudolph for alleged failure to pay $12,000 in back alimony, had charged that her husband had transferred some valuable property by warranty deed to two individuals who, in turn, executed a mortgage on the property to one "Charles F. Roberts." Mrs. von Walden is said to have declared that "Charles F. Roberts" is merely an alias adopted by Rudolph von Walden for the purpose of removing the mortgage from the possibility of attachment. In June, 1931, the papers reported that von Walden had entered into a stipulation to pay his former wife $10,500.

"PROFESSOR" RUDOLPH VON WALDEN

So much for the satellites in the von Walden group. The first newspaper record that we have of the elder von Walden's quackery was published in May, 1916. From it one learns that Rudolph was found guilty of practicing medicine without a license at Portsmouth, Ohio, fined $300 and costs, and given a suspended sentence of a year. According to an article that was published in the *Ohio State Medical Journal,* it seems that in December, 1916, Rudolph von Walden went to Portsmouth to attend one Charles Fenstermaker, whose condition Portsmouth physicians had pronounced hopeless. Mr. Fenstermaker died shortly after von Walden had collected $250 from his family. The same medical journal also reported that some time following this episode, full-page advertisements appeared in the *Cosmopolitan* and the *Woman's Home Companion* and a number of southern newspapers, announcing the alleged therapeutic miracles that von Walden's "system" would accomplish.



PHONE MAIN 2036

The R. Von Walden Institute

DEVOTED TO DISEASES OF THE

Heart, Angina Pectoris, Dropsy, etc.

SEVENTH FLOOR MITCHELL BUILDING
FOURTH AND VINE STS

Cincinnati, O.

THE WALDEN INSTITUTE

DEVOTED TO THE RELIEF OF DISEASES OF THE

HEART, ANGINA PECTORIS, CARDIAC ASTHMA
HARDENING OF ARTERIES
HIGH BLOOD PRESSURE PARALYSIS ETC.

SUITE 407 PLYMOUTH BUILDING
183 COURT STREET NEW HAVEN CONNECTICUT

R V WALDEN Director

The Walden Institute

DEVOTED TO THE RELIEF OF COMPLAINTS OF THE

HEART ANGINA PECTORIS CARDIAC ASTHMA
HARDENING OF THE ARTERIES HIGH BLOOD PRESSURE
PARALYSIS NERVOUS SYSTEM DIGESTION KIDNEYS ETC.

WITHOUT THE USE OF
DRUGS MEDICINES SERUMS OR OPERATIONS

NEWARK, N J

R. V. WALDEN
Director

Industrial Office Bldg

OFFICE OF
DR SHERMAN VON WALDEN
SPECIALIST
ATLANTA GEORGIA

November 7th, 1928.

Some von Walden letterheads (greatly reduced). At the top as used in 1914 in Cincinnati; the New Haven, Conn., letterhead, vintage of 1922; the Newark, N. J., office in 1928 and Sherman's letterhead also in 1928.

In January, 1917, Alabama papers reported that Rudolph von Walden had been arrested in Mobile on the charge of practicing medicine without a license. We have no record of the outcome of this case.

Von Walden's activities were given some further publicity in the October, 1917, issue of the *Journal of the Tennessee State Medical Association,* which published a letter from two reputable physicians recording the case of a Mr. J. W. Kerr, a brother-in-law of one of the physicians. The letter stated that Mr. Kerr, who had had organic heart disease for many years, fell into the hands of Rudolph von Walden, at the time this quack was operating his Cincinnati "institute." Von Walden charged Mr. Kerr $500 in advance and kept him in Cincinnati long enough for the check to go through the clearing house. What von Walden did to Mr. Kerr is not known, but when he sent Mr. Kerr home, he telegraphed to Mrs. Kerr to meet her husband at the train, as he was "not very well." When Mr. Kerr was met at the train by Mrs. Kerr and his family physician, he was unconscious and died three hours later. The physician who was brother-in-law to Mr. Kerr threatened von Walden with legal action if the $500 was not returned to Mrs. Kerr. It was returned.

In March, 1921, Florida papers reported that Rudolph von Walden had been arrested in St. Petersburg. Here, again, von Walden apparently escaped fine or imprisonment, as we find no record of it. In January, 1924, newspapers reported that Rudolph von Walden had been arrested by the Richmond (Va.) police on the charge of practicing medicine without a license. At the same time, the police department of Richmond wrote to the Bureau of Investigation of the American Medical Association for such data as the Bureau had on von Walden. These, of course, were sent. Von Walden was reported held on two charges—that of practicing medicine without a license and that of having illegally in his possession three quarts of whiskey. The Richmond police are reported to have said, at the time, that von Walden evidently had some "influence behind him in the state of Georgia as while in jail [in Richmond] he called some town in Georgia and asked his bankers there to wire to a bank in Richmond, asking them to honor his check for $1,000, which was given to some local attorneys" and that "the Georgia bank immediately wired this information and the check was honored." When von Walden's case was called, the quack was dismissed! According to the newspaper reports, no evidence was produced to show that he practiced medicine and—most delicious of all—the "professor" was able to convince the court that the three quarts of whiskey found in his possession were "being used in connection with his professional work."

In 1930, Rudolph von Walden made a tactical error. He went to Hartford, Conn., to ply his trade, and Hartford has a Better Business Bureau with a live personnel. After prescribing a course of medical treatment for an investigator for the Hartford Better Business Bureau, Rudolph von Walden was arrested on a charge of violating the state healing arts law. On June 3, 1930, von Walden was fined $200 and costs for violation of the state medical practice act. While von Walden gave notice of appeal it was a bluff. He paid the fine and costs.

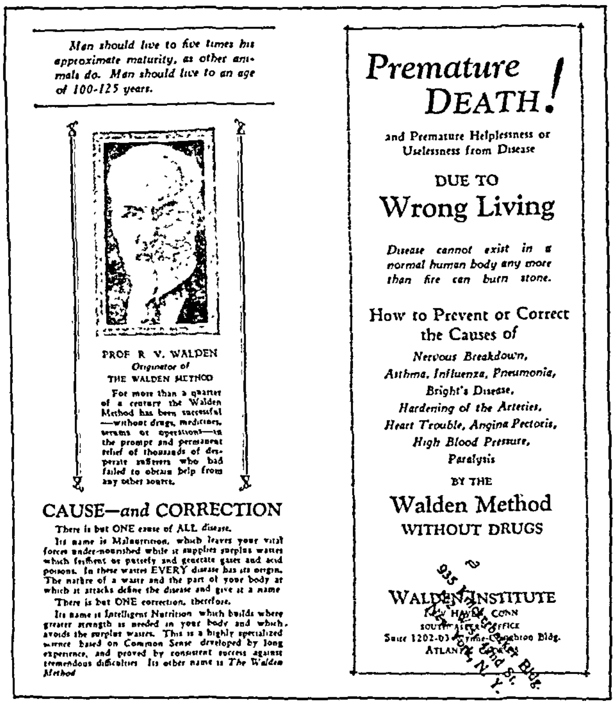
HOW RUDOLPH WORKS

Von Walden's *modus operandi* has been, in the past, to publish expensive advertisements, many of them occupying full pages of such newspapers as cater to such sources of advertising revenue. Those who wrote to von Walden in answer to the advertisements, received plausible come-on letters with "consultation blanks" common to mail-order quackery. The prospective victim was urged to fill out the blank and return it to von Walden, who would, upon its receipt, send "a written analysis of your symptoms" free of all expense. Von Walden's diagnoses, or as he would call them "analyses," were surprisingly uniform. They smelled of the rubber-stamp. Practically all those that we have seen read:

> "I find upon examination that the origin of your symptoms is in your abdominal organs; your stomach, your liver, your intestines, and also your abdominal circulation. These must be corrected first, before you can get rid of your symptoms."

Curiously enough, this same stock diagnosis—*verbatim et literatim*—is also used by Sherman von Walden. Sherman, it will be remembered, is operating at present from Atlanta, Ga. In 1927, the Atlanta concern was known as the "Walden Institute of Vital Dietetics" with R. von Walden, "Director," and "Dr. Sherman von Walden, Consultee." Later, stationery carried the name "Dr. Sherman von Walden, Specialist in Heart and Arterial Diseases, Suite 310 Mortgage Guaranty Building, Atlanta, Ga."

Rudolph von Walden has, at least on one occasion, used the stool-pigeon method of advertising. Sufferers from "heart trouble, dropsy, high blood pressure, paralysis," etc., were urged to write to Mrs. A. Spence at Gadsden, Ala., who offered to tell those who wrote her how her "dear mother was cured without drugs and her life saved." Mrs. Spence added that she felt that this was her "duty to humanity." Those who wrote to Mrs. Spence received a letter on the stationery of the Globe Realty and Auction Company, who were described on the same stationery as "Rental and Insurance Agents, Farm and Mineral Lands, Large Tracts for Subdivision, Water Power and Manufacturing Sites." This was said to be located in "Rooms Over the Cross Drug Store" on Broad Street. Investigation brought the report that no such company existed or ever had existed, except on paper. Furthermore, Mr. Cross, who operated the drug store and owned the building in which it was located, wrote that he had no knowledge of the Globe Realty and Auction Company, and that the company did not occupy any room above his store, nor had he ever rented a room to it. When Mrs. Spence's attention was called to the use of the stationery, she is said to have replied that she was only using it to economize, as they had it on hand and it was not being used. As different specimens that we have in our files show that the stationery of the nonexistent Globe Realty and Auction Company had been printed at least two different times and with two different styles of type, the "economy" is not obvious.



Man should live to five times his approximate maturity, as other animals do. Man should live to an age of 100-125 years.

PROF R. V. WALDEN
Originator of
THE WALDEN METHOD

For more than a quarter of a century the Walden Method has been successful—without drugs, medicines, serums or operations—in the prompt and permanent relief of thousands of desperate sufferers who had failed to obtain help from any other source.

CAUSE—*and* CORRECTION

There is but ONE cause of ALL *disease.*

Its name is Malnutrition, which leaves your vital forces under-nourished while it supplies surplus wastes which ferment or putrefy and generate gases and acid poisons. In these wastes EVERY disease has its origin. The nature of a waste and the part of your body at which it attacks define the disease and give it a name

There is but ONE correction, therefore.

Its name is Intelligent Nutrition which builds where greater strength is needed in your body and which avoids the surplus wastes. This is a highly specialized science based on Common Sense developed by long experience, and proved by consistent success against tremendous difficulties Its other name is *The Walden Method*

Premature
DEATH!

and Premature Helplessness or Uselessness from Disease

DUE TO
Wrong Living

Disease cannot exist in a normal human body any more than fire can burn stone.

How to Prevent or Correct the Causes of

Nervous Breakdown,
Asthma, Influenza, Pneumonia,
Bright's Disease,
Hardening of the Arteries,
Heart Trouble, Angina Pectoris,
High Blood Pressure,
Paralysis

BY THE
Walden Method
WITHOUT DRUGS

WALDEN INSTITUTE
NEW HAVEN, CONN
SOUTHEASTERN OFFICE
Suite 1202-03 [illegible] Bldg.
ATLANTA, [illegible]

935 Knickerbocker Bldg.
42nd St.
New York, N. Y.

Greatly reduced reproduction of part of a piece of von Walden ballyhoo which in the original measured about 15 inches by 17 inches. Note that, according to von Walden, all disease is caused by malnutrition.

THE FEDERAL TRADE COMMISSION TAKES A HAND

Quackery of the von Walden type is hard to reach under any but state law, and the lukewarm attitude of state prosecuting attorneys in cases involving fakers who liberally patronize local newspapers is notorious. Von Walden and his ilk cannot be reached under the postal fraud order, because the mails are used only in making the "contact," the remainder of the transaction, together with the payment of money, being personal. The national Food and Drugs Act cannot be invoked, as von Walden sells no drugs in interstate commerce. The prohibition laws seem equally helpless, when a man without medical training or license can claim to use whiskey for "professional" purposes—and get away with it. The only federal agency left is the Federal Trade Commission that has done so much good work in throwing the fear of the law into medical fakers who have otherwise considered themselves above the law.

Early this year, the Federal Trade Commission served a complaint on Sherman von Walden, in connection with his exploitation of the so-called Walden Method evolved by Sherman von Walden's father, Rudolph. After stating that Sherman van Walden was selling the alleged von Walden Method "at prices ranging from $65 to $500, payable in advance," the Commission brings out the fact that the diagnoses made by Walden and the diets and exercises prescribed by him were made, in the majority of instances, without Walden's ever seeing the patient. The Commission then lists the following "false, misleading and exaggerated statements and representations" made by Sherman von Walden in the advertising matter and literature that he sent to customers and prospective customers:

"Paragraph Two: (A) That the Walden Method is a proper and successful method of treating the diseases and ailments known as

High blood pressure
Angina pectoris
Heart attacks
Hardening of arteries
Paralysis
Threatened fatal paralysis
Arteriosclerosis
Enlargement of heart
Valvular heart trouble
Asthmatic heart
Fatty heart
Symptoms of high blood pressure
Heart symptoms
Pains in heart
Heart pounding
Dizziness
Pains in head
Shortness of breath
Smothering spells
Bright's disease
Kidney trouble
Kidney stones
Inflammation of kidneys
Bronchial asthma
Bronchitis
Cardiac asthma
Asthma
Catarrh
Pains in chest
Nerve exhaustion
Symptoms which lead to pneumonia
Influenza
Fainting spells
Falling spells
Choking spells
Uremic poisoning
Colic

"(B)—(1) That respondent is a doctor of medicine; (2) That respondent is a 'specialist' in the treatment of diseases; (3) That respondent is a 'specialist' in the treatment of heart and arterial diseases; (4) That the Walden Method will cure diseases heretofore regarded by the medical profession as incurable; (5) That respondent makes a thorough, efficient and correct diagnosis of diseases without personal, or any, examination; (6) That proper treatment can be and is prescribed for all diseases, under the Walden Method; (7) That the Walden Method is scientific and was discovered by the great German scientist, Prof. R. von Walden; (8) That the Walden Method cures through modern scientific methods; (9) That The Walden Method is and was promulgated by the greatest living authority; (10) That nothing else equals the Walden Method; (11) That the Walden Method is the one sure method in existence for treating diseases; (12) That the Walden Method has relieved thousands of patients in the last 35 years; (13) That 95 per cent of the fatal heart diseases can be cured by the Walden Method; (14) That respondent maintains an Institute of Dietetics in connection with his said business, at said City of Atlanta.

"(C) Purports to reproduce testimonials from various persons who claim to have been cured of diseases or ailments by the Walden Method, from some of which alleged testimonials the following excerpts are quoted: (1) 'Suffered for years. Relieved in 72 hours. (Angina Pectoris.)' (2) 'Relief only through hypodermic; now restored without drugs. (Angina Pectoris.)' (3) 'Had only one year to live, relieved in 24 hours. (Angina Pectoris.)' (4) 'A remarkable restoration of a case of paralysis, without drugs and medicines, caused by High Blood Pressure.' (5) 'Physician relieved of facial paralysis, high blood pressure, Bright's disease, Within Sixty Days, Without Drugs.' "

The Commission's complaint then continues:

> "1.—In truth and in fact, R. von Walden . . . has never taken a prescribed course in medicine, nor has he received a diploma from a medical school, nor has he been licensed to practice medicine in any State of the Union, nor is he a scientific man in any respect, nor has he ever been a professor of a college or other institution of learning.
>
> "2.—The respondent, Sherman von Walden, has never been a physician or surgeon, nor has he ever received a college degree or any degree except as a chiropractor. He is not a specialist in dietary, he is in no sense a scientific man, and is not qualified to properly treat by diet, exercises, and rest routine, or either, any of the diseases or ailments mentioned in Paragraph Two hereof.
>
> "3.—The Walden Method will not cure nor will it aid in the cure of the diseases and ailments mentioned in Paragraph Two hereof.
>
> "4.—The Walden Method is unscientific and does not cure diseases or human ailments through modern scientific methods, nor does it cure or aid in the cure thereof at all.
>
> "5.—The Walden Method was not promulgated by the greatest living authority, or by any authority, living or dead.

"6.—The Walden Method is not a proper or sure method of treating the diseases and ailments mentioned in Paragraph Two hereof, or any other diseases or ailments.

"7.—The Walden Method has not relieved thousands, or any, patients of their ailments or diseases.

"8.—Ninety-five per cent, or any per cent of fatal heart disease has not been cured or relieved by the Walden Method.

"9.—The Walden Method is not the only sure method of curing or aiding in the cure of the diseases or ailments mentioned in Paragraph Two hereof, nor is it a sure method at all.

"10.—Correct and accurate diagnoses of said ailments or diseases of the human body cannot be made by the methods employed by respondent.

"11.—Many of the purported testimonials referred to in subdivision (c) of Paragraph Two hereof are false and misleading, many were never given and many were induced by purchase and such purchase not disclosed to persons reading the same.

"12.—The diagnoses attempted by the respondent are not within the range of this respondent's methods, skill or information.

"13.—The use of the abbreviation for 'Doctor,' 'Dr.,' as applied to the name of the respondent in the advertising and sale of the 'Walden Method,' as aforesaid, holds out to the public that respondent is a doctor of medicine, when such is not the fact."

Hearings have not yet been held on this case. They will be awaited with interest by those who seek to protect the public from quackery.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be *omitted, on request.*

DIFFERENTIAL DIAGNOSIS OF INTESTINAL WORMS

To the Editor:—I should be pleased to have your assistance in identifying an intestinal worm discovered in the stool of a girl, aged 18 months. The previous history is negative. The child is greatly emaciated, feeble and fretful; the appetite is fair; the digestion, except during brief dentition, has been good. The present illness began nearly three months ago, the chief symptoms being progressive loss of weight and strength, increasing anemia, constant fretting and crying for hours and hours. Slight fever is present most of the time. Urinalysis gives negative results; the hemoglobin is 60 per cent, the stool is well digested but contains many small islands of mucus. The first microscopic examination disclosed ova comparable to hookworm. The first dose of castor oil given after a course of chenopodium oil caused disappearance of these ova. None have *appeared since. In the first specimen and in all subsequent stools* examined, numerous worms have been seen which when magnified 70 diameters appear much like the male hookworm by naked eye; that is, straight or slightly curved, sharp at one end but clubbed at the other. The worms are striated transversely (ringed) for their entire length. They are not visible to the naked eye. Motion has not been observed. The food has been milk, eggs and cereal. No fruit substances such as peach fuzz have been ingested. Slight improvement in the child's condition followed an anthelmintic, but the stool still teems with these apparent worms. Please omit name.

M.D., Oklahoma.

Answer.—There is a question here as to a parasite really being present. It is difficult to diagnose the genera of worms by a written report. The problem of recognition of the parasite (?) present here would be simplified if one knew the residence of this child and also had available a differential blood count, showing the eosinophil percentage. Pathologic intestinal parasites, which by excretion of toxin (?) or by tissue invasion are producing lesions, commonly cause alterations from the normal differential leukocyte formula; the anomaly usually is eosinophilia. With 60 per cent hemoglobin, this child's red cells might be expected to present abnormalities.

Many of the signs and symptoms presented clinically by this child could be ascribed to a dietetic deficiency. Certainly, for an 18 month old girl a diet comprised wholly of milk, eggs and cereal is unbalanced in vitamins. It would be of importance to know what has been the diet prior to the one named. In a previous diet, the "ova" and "worms" described might well be vegetable hairs, fruit fibers or molds. It is difficult to recognize ova or worms accurately after the administration of castor oil; a saline cathartic delivers stools which may be readily examined both macroscopically and microscopically.

If the offending parasite here were hookworm, it is difficult to explain how ova were seen but once, whereas, on all occasions, the stool was rich in "worms." Hookworm-filled stools usually exhibit ova and worms simultaneously, at least at some examinations. Also, it is rare to find stools "teeming with hookworms" without observing mobility in many, especially if warm freshly passed stools are studied on a warmed microscope stage. The inquirer is ambiguous: are the worms invisible to the unaided eye, or is it the striations? Since hookworms vary in length from one-third to one-half inch, it is possible, if the stool is stirred on a black surface, to see them with the unaided eye. Ancylostoma is even longer than hookworm (Necator americanus). Striation is not seen microscopically. The pointed part of the female and the umbrella-like copulatory bursa of the male are characteristics readily identified under the medium powered lens.

The pinworm (Enterobius vermicularis) may be confused with hookworm. It can be seen macroscopically, squirming on fecal masses, since it is approximately half an inch long. Since eggs are deposited as the worm wanders, anal and perineal anal irritation is common and should be looked for, particularly at night. Scratching infects the fingers, produces surface body lesions, and spreads the infestation. The worm is actively motile and not transversely striated.

The roundworm (Ascaris lumbricoides), from one-half to one-fourth inch long and slightly pinkish, is transversely striated but has not a clubbed end as described by the correspondent. Infestation may occur through hogs or through those who come into contact with them and carry the slowly maturing eggs. Constitutional upsets may be severe, because the worm migrates extensively (through the liver, lungs, trachea or appendix). The knobbed ovoid eggs should not readily be confused with the rounded, four-segmented eggs of hookworm. The parasite is motile.

From the foregoing summary it would seem that, of the common worms infesting the alimentary tract of human beings, the correspondent is dealing with a roundworm (Ascaris lumbricoides) or an artefact.

In the circumstances, further observations should be made on foreign substance present in the stool.

Treatment should include a vitamin balanced, adequate ration. "On suspicion," a course or two of thymol may be tried after the patient has been on a fat-free diet for three days.

PREGNANCY IN DOUBLE UTERUS

To the Editor:—Please advise the wisest course to pursue in the following case: One of my patients, a primipara, who is three months pregnant, has a "uterus duplex." The vagina is also divided by a septum. The uterus on the right side is the one pregnant. Shall I let her go to term? Will there not be too much interference at term by the other uterus and the vaginal septum? The husband and wife do not want a cesarean operation performed. The pelvic measurements are normal. The literature available regarding this seems to be scarce. Please omit name.

M.D., Ohio.

Answer.—Uterus didelphys, or double uterus, consists of two distinct uteri, usually of different sizes, each with a separate cervix which communicates with the vagina. In most instances, as in the case cited, the vagina is also double. A review of the literature reveals that, in more than a fourth of all the cases, pregnancy is interrupted before the child is viable. The cause of this may be abnormal implantation of the ovum due to the uterine malformation or the malformation itself. In addition to the abortions that occur, labor takes place prematurely in an additional 10 per cent of the cases. Only about 60 per cent of all the patients with uterus didelphys carry their pregnancies to term. Of those who go to term, about 70 per cent are delivered normally, whereas the remainder have complications. This means that only about 40 per cent of all women with a pregnancy in a double uterus have normal deliveries. The most common factors that produce dystocia are the enlarged, nonpregnant half of the uterus, the vaginal septum when present, uterine inertia, tetanic contraction of the uterus, and retention of the placenta in the uterus. Breech presentation is frequently observed. Complications such as postpartum hemorrhage, hematometra and subinvolution occur more frequently in the presence of these malformations than in normal cases.

Since the majority of patients who go to term deliver spontaneously, the treatment of a case of pregnancy in a uterus didelphys should be conservative. An effort should be made to prevent abortion or premature labor. Repeated examinations should be made from time to time, but with great gentleness, to detect a beginning incarceration of the nonpregnant uterus. If symptoms of incarceration arise, treatment should be instituted early. When the patient goes into labor, she should be watched closely. Operative intervention is necessary only when abnormal symptoms present themselves. Even if the patient delivers spontaneously she must be carefully guarded during the puerperium. Excellent articles on this subject are those by N. F. Miller (*Am. J. Obst. & Gynec.* **4**:398 [Oct.] 1922) and Palmer Findley (*Am. J. Obst. & Gynec.* **12**:318 [Sept.] 1926).

USE OF IRON CITRATES IN SECONDARY ANEMIA

To the Editor:—What are the relative merits of ferric citrate and of iron and ammonium citrate in secondary anemia? What is the maximum dosage of each preparation? What is the extent of solubility in water or in other solvents? Please indicate method of prescribing these preparations. What is the toxicity, if any?

A. M. Loes, M.D., Dubuque, Iowa.

Answer.—Ferric citrate is not as soluble as iron and ammonium citrate, but it is more permanent in the air. Hence, the former would be more suitable for prescribing in powder form and the latter for solution. A dose of 1 Gm. is ordinarily not exceeded. Toxicity is slight. Extremely large doses might produce local irritation.

Iron and ammonium citrate is soluble in less than its own weight of water. It is insoluble in alcohol. The following prescription might be suggested:

	Gm. or Cc.
Iron and ammonium citrate........................	10
Syrup of orange..............................	60
Chloroform water..........................to make	120

M. Label: Teaspoonful in water three times daily after meals.

A tablespoonful dose of this preparation should not be excessive.

FRÖHLICH'S SYNDROME OR DYSTROPHIA ADIPOSOGENITALIS

To the Editor:—Mrs. M. G., aged 28, whose family history is irrelevant, has been married five years and has not become pregnant. Menstruation began at the age of 13 and there were only one or two menstrual flows each year up to the age of 20. From then until the present time there have been three or four menstrual flows each year, lasting from one to three weeks, occasionally accompanied by griping pains in the uterus. Sometimes the flow is light or bright red; again it is dark. At times there are clots of various sizes; again there are no clots. The last menstrual flow began June 15 and lasted periodically until August 1. The flow returned from two to five days in a gush, which the napkin could not contain. During this period the whole abdomen was sore and tender from a misstep or from an automobile ride. Between periods the abdomen is full and distended; this condition is relieved by the flow. The patient is 5 feet 4 inches (162.6 cm.) in height and weighs 160 pounds (72.6 Kg.), with some tendency to obesity. The patient desires to correct the condition and become pregnant, if possible. With many consultations there has been no satisfactory result. About one year ago a small polypus was removed, without results. Please omit name. M.D., Indiana.

Answer.—The history suggests a case of Fröhlich's syndrome, dystrophia adiposogenitalis, although an obstruction of the cervical canal is a possibility, and a dilator should be passed to rule out this complication. Fröhlich's syndrome is characterized by scanty and irregular menstruation, dysmenorrhea, and a tendency to adiposity with atypical deposition of masses of fat. Troubles of this nature are due to disturbed function of the endocrine system, notably the pituitary gland. The patient should have a determination of the basal metabolic rate. Roentgen examination of the sella turcica and a blood calcium determination might also be helpful. The treatment is unsatisfactory, although rapid strides are being made in the therapy of such conditions. An adiposity diet, outdoor life, and the administration of thyroid extract or pituitary gland substance, or the more recently advocated specific hormones may be helpful.

COMPARATIVE CALCIUM AND PHOSPHORUS VALUES OF FOODS

To the Editor:—Knowing the discriminating care that is employed in the acceptance of advertisements for The Journal, I was somewhat surprised to find the comparison that was published on the outside advertising page (page 62) of the issue for October 17. This contains a comparison of a proprietary cereal product with other cereals, and likewise with whole milk and eggs. A casual inspection of the figures might lead one to assume that milk (notably an excellent source of calcium and phosphorus) is comparatively deficient in these elements, when contrasted with the new proprietary product. Is this not misleading and likely to tend to curtail the use of milk, which has begun to play a large rôle in all the programs for child welfare? M.D., Connecticut.

Answer.—Our correspondent points out several features of the comparison that might easily be misleading. For example, the cereal referred to is recorded as having calcium, 0.78 per cent, in contrast with milk, 0.12 per cent; similarly the cereal phosphorus is given as 0.62 per cent, in contrast with 0.09 per cent in milk. The fallacy in this comparison lies in the fact that, whereas milk contains 87 per cent of water, the cereal in question has only 7 per cent of moisture. If the solids of the cereal and those of whole milk were compared, the relative value of milk would at once become conspicuous.

A quart of milk contains approximately 1.2 Gm. of calcium and 0.9 Gm. of phosphorus. It would require more than 150 Gm. (5 ounces) of the cereal in question to supply the equivalent of that amount of milk in the two elements referred to. The same comment may be made with reference to the comparison of the cereal with milk, in respect to the relative content of vitamin G. Obviously milk is normally consumed in far larger quantities than is the case for any cereal. The advertising comparison also contrasts the proprietary cereal, yielding 109 calories per ounce, with milk yielding 20 calories per ounce. In practice, however, a quart of milk will yield more than 600 calories, the equivalent of at least 6 ounces of the cereal.

SURGICAL DRAINAGE OF FELON

To the Editor:—Is it now good surgical practice merely to lance a felon of four or five days' standing with one short incision, one-fourth or three-eighths inch long, as though it were a boil? Please omit name.

M.D., Michigan.

Answer.—Because of the peculiar attachment of the skin on the tips of the fingers to the periosteum, spreading infection from a felon will extend downward and not laterally. This explains why there is no fluctuation until late, although the entire finger tip is usually swollen.

The old practice of an incision over the abscess, similar to that of lancing a felon, is to be condemned. This is not good surgical practice, because it may produce an incision which is longer than necessary for superficial abscesses; because a short incision will not drain and because any incision will leave a bad scar over the most important tactile area of the body.

The treatment for all felons is immediate drainage, preferably under regional anesthesia at the base of the finger with procaine. If the abscess is superficial and the area can be localized, it is good practice to place a sharp knife almost flat against the abscess area and cut off the top of the rounded swelling, thus opening up the abscess cavity. The removal of a certain amount of skin from around the cavity by this method will prevent its closing too soon, and will drain it better than a vertical incision.

In the felons which have gone on to deeper involvement, as evidenced by general swelling of the fingertip and severe pain, one must drain a wider area. Unless the felon is located directly at the tip of the finger beneath the nail, one should always preserve this area and not cut through it with the knife. If it must be cut, it should be cut parallel to the nail and circularly around the finger in the shape of a horseshoe.

In the ordinary felon near the middle of the tip, one should make two incisions—one along either side—and then undercut, parallel to the bone, across the abscess cavity. If necessary, the whole pad of the finger except the tip near the nail may be separated for adequate drainage. A soft rubber tissue drain is pulled through from one incision to the other and left in until the drainage has lessened.

HYPERSENSITIVENESS TO DIPHTHERIA TOXOID

To the Editor:—Having read the answer to the question concerning hypersensitiveness to toxoid in Queries and Minor Notes (The Journal, October 10, p. 1095), I would take the liberty of raising a question regarding the impression which the average reader may receive. The answer to Dr. Robbins' question states that "the control test, as carried out in the Schick procedure, serves as an indication of susceptibility to proteins in the toxin solution and may be used as a substitute for the injection of dilute toxoid solution in determining susceptibility of individuals to protein in the toxoid solution." As the reply to the question states, "Diphtheria toxin and toxoid are not the same substance and individuals do not react to the two in the same manner." Therefore, I believe that advice conveying the impression that Schick test control material may be used as a substitute for the dilute toxoid is true only to a limited extent and that this statement should be corrected. Diphtheria toxoid, representing the detoxified diphtheria toxin, is diluted 1:20 when prepared as reaction test material. Schick test control material is diluted the same as Schick test toxin of any given lot, which is approximately a 1:300 dilution. Walter E. King, M.D., Detroit.

Answer.—It is true that the Schick test control material is not identical with that of the diluted diphtheria toxoid used as a test for protein susceptibility. The impression intended to be conveyed was that the Schick test control serves as a guide to susceptibility to the proteins in the toxin solution and so, to a certain extent, may also be used as a guide to susceptibility to the proteins in the diphtheria toxoid solution.

ELECTROCARDIOGRAPHIC TRACINGS WITH PATIENT UNDER ANESTHESIA

To the Editor:—I should appreciate any information you may have available concerning the danger or safety of the taking of electrocardiographic tracings while the patient is under anesthesia, especially ethylene and oxygen.

James F. Alison, M.D., Selma, Ala.

Answer.—It is inconceivable that any dangerous situation might arise from taking an electrocardiographic tracing while the patient is under anesthesia, whether with nitrous oxide-oxygen, ether, or ethylene-oxygen. Even if a small portable electrocardiograph were taken into the room itself, there would be no danger. Some of the older types of machines throw a spark when the circuit is closed. In that case, of course, the machine is to be left in the hall, only the leads being allowed in the room.

OXYGEN TENTS

To the Editor:—Will you please give your impression as to the type of oxygen tent which is giving the best results in the market today? We anticipate the purchase of a tent in the near future and want advice.

M.D., Wisconsin

Answer.—There are several makes of oxygen tents that are sufficiently satisfactory for use under most conditions. The main requirements of an oxygen tent are that it should be large enough, at least 3 feet in each direction, that it should hold oxygen well enough so that from 50 to 60 per cent of oxygen can be maintained in it, and that the cooling device and circulation of the atmosphere of the tent should be adequate to keep the temperature at 70 F. Most of the tents that can be purchased will satisfy all these requirements in the winter time, but on hot summer days the temperature and humidity inside the tent cannot be properly controlled except with a few makes of oxygen tents. The patient's comfort, well being and progress toward recovery are dependent not only on the maintenance of a sufficient amount of oxygen in the tent but also on the control of the temperature and humidity in the tent. The temperature and humidity control has not been recognized sufficiently by most manufacturers. The following are well known tents: Barach-Davidson; Cecil-Plummer; Oxygenaire; Barach-Roth.

DIFFERENTIATING WHITE AND COLORED CHILD

To the Editor:—I have had an unusual case of a white girl giving birth to a male child which is apparently a Negro. I wish you would give me all the information you can in regard to differentiating between a white and a colored child born of a white mother. Kindly list the characteristics from a physical examination and also whatever laboratory means I can use to form a definite conclusion.

J. Marsh Frere, M.D., Chattanooga, Tenn.

Answer.—For the purpose of differentiating between a white and a Negro child, skin color is the only reliable guide. Furthermore, in a Negro child the hair will be dark and may be woolly but need not be so in white-Negro crosses. The eyes will be dark brown. The shape of the head is entirely unreliable, since both long and short heads occur in a white and a (mixed) Negro population. Laboratory tests will not be of much assistance when nothing is known regarding the paternity.

Heredity studies have revealed the fact that dark skin color is generally dominant over light color, although exceptions have been observed (but not for crosses between Negroes and whites). There are cases known in the literature in which two individuals with light coloring had dark-skinned offspring.

When the father is suspected to be either one of, say, two or three individuals, anthropologic measurements and an examination of the blood groups of all concerned may lead to a definite conclusion.

GANGLION OF WRIST

To the Editor:—I request some information in reference to the treatment of the so-called ganglions that occur frequently about the wrist. In cases which have not subsided with firm bandaging, it has been my custom to perform excision. I have had very good results from this treatment. However, there seem to persist rumors of the method of hitting these swellings with a heavy book to cause bursting of them subcutaneously. I have been unable to find this treatment recommended in any authoritative textbook, or to find any surgeon of standing who would admit using it. Will you inform me whether this method of treatment is really standard and satisfactory?

E. C. McCulloch, M.D., Staten Island, N. Y.

Answer.—So-called ganglions may disappear following a severe blow, but this form of treatment is not good practice. The subsidence following a blow probably results from the rupture of the wall, with absorption. Since a certain number may absorb following this procedure, it would be preferable to introduce a small knife at a distance subcutaneously, and cut the wall.

The best surgical practice is to excise the mass. However, this leaves a scar and, furthermore, because of the rather poor circulation, there is often a failure of healing by primary intention. This necessitates the utmost care in operation, which should always be done with the greatest aseptic precautions, in the hospital.

"ACCOMMODATIVE PHOSPHENE"

To the Editor:—Can you tell me where I can find an account of the "accommodative phosphene" of Czermak and how to elicit it? I can see a luminous ring at a distance in the dark, and on accommodation this becomes smaller, presumably from contraction of the pupil. Tscherning says that the experiment did not succeed with him. I am not satisfied that the ring is due to accommodation. It seems to appear anyway in a dark room. It is extremely vague, but my accommodation is only about 2 D.

Reginald A. Yeld, M.D., Edgewood, B. C.

Answer.—Details regarding accommodative phosphene can be found in the following articles:

Purkinje, J. E.: Beobachtungen und Versuche zur Physiologie der Sinne, Prague, J. G. Calve **1:** 126; **2:** 115, 1823.

Czermak, J. M.: Sitsungsb. d. k. Akad. d. Wissensch. **27:** 78.

Helmholtz, H.: Helmholtz's Treatise on Physiological Optics, translated from the Third German Edition, Ithaca, N. Y., the Optical Society of America **2:** 9, 1924.

Helmholtz gives a somewhat detailed discussion and covers the points in question.

USE OF OVARIAN EXTRACT AND SEX HORMONES

To the Editor:—In The Journal, October 3, there appeared an inquiry on the treatment of menopausal symptoms. I was expecting to find a suggestion as to the use of theelin or amniotin. You mention hypodermic injections of ovarian extract, which are not the same as the aforementioned products. Do you not consider their use and value as yet proved? I have treated several cases, with a substantial percentage of good results, in one case cutting down the heat flashes in two weeks from twenty a day to five a day by the use of 8 cc. of the product. What about these new extracts?

M. M. Hart, M.D., New Wilmington, Pa.

Answer.—The new preparations of ovarian hormone, such as Theelin and Amniotin, have been used in a large number of cases of troublesome menopausal symptoms, but the results obtained are by no means uniform. Neither Amniotin nor Theelin has been accepted for inclusion in New and Nonofficial Remedies. In many cases, no relief at all is obtained whereas in others, just as in the case cited, the benefit derived is excellent. In some cases in which good results are observed, part of the success may be attributed to the psychologic effect of the injections. In patients who have severe menopausal symptoms, these preparations may be employed but, in addition, it is important to prescribe sedatives and a proper diet and mode of living.

LEFT-HANDEDNESS AND BRAIN CENTERS

To the Editor:—I read an article on "The Left-Handed Child," by Arthur Dean, a newspaper syndicate writer. I beg you to give me your opinion as to the correctness of his statement. Mr. Dean seems to assume that, when the manual center is in the right side of the brain, other important centers which normally, or rather usually, belong on the left side are also in the right hemisphere.

Robert W. Gibbes, M.D., Columbia, S. C.

Answer.—This statement may be accepted as substantially correct. The "other important centers" referred to are chiefly those concerned with the speech mechanisms, both motor and sensory, and the eupraxis mechanisms. The leading hemisphere in these functions seems to be usually the left in right-handed persons and the right in left-handed persons, though it is possible that this is not always true. Clinical experience also has shown that in some cases there does seem to be a causal relationship between the compulsory use of the right hand by a left-handed person, and neurotic or other disordered behavior.

HEREDITARY CANCER IN MAN

To the Editor:—A mother was found to have cancer of the uterus within a few months after the birth of a male infant. Is this boy more liable to a future development of cancer than if the mother had not had the cancer?

J. Dale Graham, M.D., Columbus, Kan.

Answer.—In spite of the fact that in certain animals there is a distinct hereditary tendency to cancer, this has not been established as a factor susceptible of determination in human beings. The child in the case cited does not run a greater risk of the development of cancer than does any other child. This statement applies even if the cancer was present before the child was born.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 11. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Clinical.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Boston, Dec. 21. Sec., Dr. Wm. H. Wilder, 122 S. Michigan Blvd., Chicago.

ARIZONA: Phoenix, Jan. 5-6. Sec., Dr. B. M. Berger, 12 North Central Ave., Phoenix.

COLORADO: Denver, Jan. 5. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Dec. 29-30. *Regular.* Washington, Jan. 11. Sec., Dr. W. C. Fowler, District Bldg., Washington.

HAWAII: Honolulu, Jan. 11-14. Sec., Dr. James A. Morgan, Room 48, Young Bldg., Honolulu.

MARYLAND: *Homeopathic.* Dec. 17-18. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 5-6. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, Jan. 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Medical Arts Bldg., St. Paul.

NEBRASKA: *Basic Science.* Lincoln, Jan. 12-13. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NORTH DAKOTA: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, Grand Forks.

OREGON: Portland, Jan. 5-7. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 5-9. Sec., Mr. Charles D. Koch, Harrisburg.

RHODE ISLAND: Providence, Jan. 7-8. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

SOUTH DAKOTA: The St. Charles Hotel, Pierre, Jan. 19-20. Dir., Dr. H. R. Kenaston, Bonesteel.

TENNESSEE: Memphis, Dec. 18-19. Sec., Dr. Alfred B. DeLoach, Medical Arts Bldg., Memphis.

WASHINGTON: *Basic Science.* Seattle, Jan. 14-15. *Regular.* Seattle, Jan. 18-19. Dir., Mr. Charles Maybury, Olympia.

WISCONSIN: *Basic Science.* Milwaukee, Dec. 19. Sec., Prof. Robert N. Bauer, 3414 West Wisconsin Ave., Milwaukee. *Regular.* Madison, Jan. 12-14. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

Utah June-July Report

Mr. S. W. Golding, director, Utah Department of Registration, reports the written examination held at Salt Lake City, June 30-July 1, 1931. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. Five physicians were licensed by reciprocity with other states, and 3 physicians were licensed by the endorsement of credentials, July 14, 1931. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
State University of Iowa College of Medicine	(1930)	82.3
University of Louisville School of Medicine	(1930)	82
Royal University of Bologna Faculty of Med. and Surg.	(1930)*	78

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School	(1931)	Idaho
Indiana University School of Medicine	(1917)	Louisiana
State University of Iowa College of Medicine	(1930)	Iowa
University of Louisville School of Medicine	(1930)	Kentucky
University of Pennsylvania School of Medicine	(1928)	Penna.

College LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Washington University School of Medicine	(1930)	N. B. M. Ex.
University of Pennsylvania School of Med.	(1929), (1930)	N. B. M. Ex.

* Verification of graduation in process.

California July Report

Dr. Charles B. Pinkham, secretary, California Board of Medical Examiners, reports the written examinations held at San Francisco, July 6-9, 1931, and Los Angeles, July 21-23, 1931. The examinations covered 9 subjects and included 90 questions. An average of 75 per cent was required to pass. Two hundred and eighteen candidates were examined, 206 of whom passed and 12 failed. The following colleges were represented:

College PASSED	Year Grad.	Number Passed
College of Medical Evangelists	(1930, 3), (1931, 41)	44
Stanford University School of Medicine	(1930, 2), (1931, 43)	45
University of California Medical School	(1931, 54)	54
University of Colorado School of Med.	(1930, 2), (1931, 2)	4
Loyola University School of Medicine	(1930), (1931, 3)	4
Northwestern University Med. School	(1930, 3), (1931, 11)*	14
Rush Medical College	(1921), (1931, 2)	3
University of Illinois College of Medicine	(1929), (1931, 4)	5
State University of Iowa College of Medicine	(1930)	1
University of Kansas School of Medicine	(1930)	1
Tulane University of Louisiana School of Medicine	(1931)	1
University of Michigan Medical School	(1931)	1
Harvard University Medical School	(1930)	1
Tufts College Medical School	(1930)	1
University of Minnesota Medical School	(1928), (1931)	2
Creighton University School of Medicine	(1931, 9)	9
Syracuse University College of Medicine	(1930)	1
University of Rochester School of Medicine	(1929), (1930)	2
University of Oregon Medical School	(1931)	1
Jefferson Medical College of Philadelphia	(1929), (1930)	2
University of Pennsylvania School of Medicine	(1929)	1
University of Manitoba Faculty of Medicine	(1925)	1
University of Toronto Faculty of Medicine	(1918)	1
McGill University Faculty of Medicine	(1930, 4), (1931)	5
University of Vienna Faculty of Medicine	(1930)†	1
Royal Univ. of Naples Faculty of Med. and Surg.	(1916)†	1

College FAILED	Year Grad.	Number Failed
University of Illinois College of Medicine	(1931, 2)	2
Creighton University School of Med.	(1930, 3), (1931)	4
University of Oregon Medical School	(1930)	1
Medical Faculty of Trinity University, Toronto	(1904)	1
University of Vienna Faculty of Medicine	(1930)†	1
University of Bordeaux Faculty of Med. and Pharm.	(1930)†	1
University of Amsterdam Medical Faculty	(1901)†	1
University of Tomsk Faculty of Medicine, U. S. S. R.	(1913)†	1

Dr. Pinkham also reports 6 physicians licensed by endorsement of credentials from April 23 to Aug. 6, 1931. The following colleges were represented:

College LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College	(1906)	U. S. Army
Indiana University School of Medicine	(1929)	U.S.P.H.S.
State University of Iowa College of Medicine	(1889)	U. S. Army
St. Louis University School of Medicine	(1917)	U. S. Navy
Medical College of the State of South Carolina	(1916)	U. S. Navy
Baylor University College of Medicine	(1930)	U. S. Navy

* The M.D. degree of two of these applicants is being withheld pending completion of internship.

† Verification of graduation in process.

Michigan June Examination

Dr. F. C. Warnshuis, former secretary, Michigan Board of Registration in Medicine, reports the written examination held at Ann Arbor and Detroit, June 15-17, 1931. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Two hundred and fifty-four candidates were examined, all of whom passed. The following colleges were represented:

College PASSED	Year Grad.	Per Cent
College of Medical Evangelists	(1931)	84.5
Hahnemann Medical College and Hospital, Chicago	(1918)	80.2
Loyola University School of Medicine	(1931)	78.7, 81.3
Northwestern University Medical School	(1931)	84.6, 84.7
Rush Medical College	(1927) 84.1, (1931)	82.8,* 85.8
University of Illinois College of Medicine	(1931)	85.3†
Johns Hopkins University School of Medicine	(1928)	85.9
Harvard Univ. Medical School	(1928) 85.5, (1930) 85, (1931)	86.2
Detroit College of Medicine and Surgery	(1931)‡	79.7, 80, 80, 80.2, 80.6, 80.9, 80.9, 81.1, 81.5, 81.7, 81.7, 81.8, 81.8, 81.9, 82, 82.2, 82.3, 82.3, 82.3, 82.7, 82.7, 82.8, 82.9, 82.9, 83.1, 83.3, 83.4, 83.5, 83.6, 83.6, 83.8, 83.9, 84.1, 84.1, 84.2, 84.2, 84.3, 84.3, 84.4, 84.5, 84.5, 84.6, 84.8, 84.8, 85, 85.1, 85.2, 85.2, 85.3, 85.5, 85.6, 85.6, 85.6, 85.8, 85.8, 85.9, 86.1, 86.2, 86.3, 87, 87.1, 87.2, 87.4, 87.6, 87.6, 87.9, 89.4
University of Michigan Medical School	(1929)	84.2, (1930) 80.6, 84.7, 87.8, (1931) 82.7, 82.7, 82.9, 82.9, 82.9, 83, 83, 83.1, 83.2, 83.3, 83.3, 83.3, 83.4, 83.4, 83.5, 83.5, 83.6, 83.9, 83.9, 84, 84.1, 84.3, 84.3, 84.4, 84.4, 84.4, 84.5, 84.5, 84.5, 84.6, 84.8, 84.8, 84.8, 84.8, 84.8, 84.9, 85, 85, 85.1, 85.1, 85.1, 85.1, 85.1, 85.1, 85.2, 85.2, 85.2, 85.2, 85.4, 85.4, 85.4, 85.4, 85.6, 85.6, 85.6, 85.7, 85.7, 85.7, 85.7, 85.8, 85.8, 85.8, 85.9, 85.9, 86, 86, 86, 86.1, 86.1, 86.2, 86.2, 86.2, 86.2, 86.2, 86.2, 86.2, 86.3, 86.3, 86.4, 86.4, 86.5, 86.5, 86.5, 86.6, 86.6, 86.6, 86.7, 86.7, 86.7, 86.7, 86.7, 86.7, 86.7, 86.7, 86.7, 86.7, 86.8, 86.8, 86.9, 86.9, 86.9, 86.9, 87.1, 87.1, 87.1, 87.2, 87.2, 87.2, 87.2, 87.2, 87.2, 87.3, 87.3, 87.4, 87.5, 87.6, 87.6, 87.7, 87.8, 87.8, 87.9, 87.9, 88, 88, 88.1, 88.1, 88.1, 88.1, 88.2, 88.2, 88.3, 88.4, 88.4, 88.5, 88.5, 88.6, 88.6, 88.7, 88.7, 88.7, 88.7, 88.7, 88.8, 89.9
University of Oregon Medical School	(1929)	84.5
Jefferson Medical College of Philadelphia	(1930)	81.6, 82.8
University of Pennsylvania School of Medicine	(1926)	86.4, (1928) 81.4, (1930) 84.8, 86.4
Medical College of Virginia	(1930)	83.6
University of Alberta Faculty of Medicine	(1929)	85.5
University of Toronto Faculty of Medicine	(1918) 84.6, (1929)	84.2
Queen's University Faculty of Medicine	(1929)	83.2
University of Western Ontario Medical School	(1930)	85.5, 89.8, (1931) 82.8, 83.3, 84, 84, 84.2, 84.3, 84.3, 84.9, 85.5, 85.6
McGill University Faculty of Medicine	(1930)	82.7

* This applicant has received a four-year certificate and will receive an M.D. degree on completion of an internship.

† This applicant has completed his medical course and will receive an M.D. degree on completion of an internship.

‡ These applicants have received an M.B. degree and will receive an M.D. degree on completion of an internship.

Book Notices

Detachment of the Retina: A Contribution to the Study of Its Causation and Treatment. By J. Ringland Anderson, M.C., M.B., B.S., Ophthalmic Surgeon to the Alfred Hospital, Melbourne. With a foreword by Sir John Herbert Parsons, C.B.E., D.Sc., F.R.C.S. Published for the British Journal of Ophthalmology. Cloth. Price, $6.50. Pp. 207, with 9 illustrations. London: Cambridge University Press; New York: Macmillan Company, 1931.

This is a comprehensive review of the present knowledge of detachment of the retina. The material is divided into chapters, beginning with a presentation of the older ideas concerning the disease, the present ideas about its etiology, and the subjective symptoms and objective observations. Next are described the anatomy and physiology of the retina, the choroid, the circulation of the blood and the aqueous, and the ocular reactions to injuries. The chapter on pathogenesis gives the various theories as to the cause, the history of the origin of these theories, and the associated pathologic changes seen with detachment of the retina. The chapter on diagnosis considers in detail the methods of differentiating this condition from detachments due to sarcoma and gives the field changes as well as tension changes. The chapter on treatment considers the nonoperative method. The main portion of the work deals with the localization of tears or holes in the retina and their treatment by cautery after Gonin, giving in detail the technic for both and the operative results. The section on prognosis discusses the untreated cases and compares these with the cases treated with cautery. The bibliography is complete and conveniently divided into subtitles at the end of each chapter. The work offers nothing original but it does provide for the busy practitioner a compact and satisfactory summary of the present knowledge of the subject and should meet with the widespread approval of ophthalmologists at large.

Cantidad de hemoglobina de la sangre humana en la República Argentina. Tesis. Por el Dr. Oscar Orias. Trabajo del Instituto de Fisiología de la facultad de ciencias médicas de Buenos Aires. Paper. Pp. 116. Buenos Aires: Frascoli y Bindi, 1930.

The Newcomer colorimetric technic for the determination of hemoglobin is considered the most practical, exact method, and is the procedure of choice. The bloods of many people of the Argentine Republic have been examined by the author, who concludes that his values for the hemoglobin of this group of people are similar to those obtained in other parts of the world. Hemoglobin values are greater in males than in females, and greater in the new-born than in the adult; the hemoglobin value drops during pregnancy but rapidly returns to normal after the puerperium. At altitudes of 1,200 meters or more, an appreciable increase in hemoglobin occurs. University students and officials show greater hemoglobin values than do soldiers and sailors. It is thought that this apparent discrepancy is due to differences in nutrition, clothing and conditions of work in these classes of people. The variations encountered in different social groups merit further investigation.

Physiopathologie de la thyroïde: Diagnostic et traitement des goitres. Par Lucien Dautrebande, de la Foundation Reine-Elisabeth. (Avec la collaboration du Dr. A. Lemort.) Paper. Price, 40 francs. Pp. 326, with 36 illustrations. Paris: Masson & Cie, 1931.

In the first part of the book the author discusses the normal and the pathologic physiology of the thyroid gland in their relations to the chemical composition of the gland, its histology, general metabolism, and the special histology of various nutritional elements. The geographic distribution of goiters throughout the world and their relation to lack of iodine in water and in agricultural products are studied. Original ideas as well as a criticism of former conceptions of hyperthyroidism are presented. The second part of the book is devoted to clinical considerations, and the author presents a physiopathologic classification of thyroid disorders, in which the presence or absence of hyperthyroidism is considered the essential point of differentiation and the determination of the basal metabolic rate is emphasized as being the most important piece of evidence in the differentiation of hypothyroid, normal and hyperthyroid states as well as in the estimation of the gravity of a given case of hyperthyroidism. This point is debatable and would probably be considered by most clinicians as of importance secondary to the clinical observation of the patient. Several chapters are devoted to the exposition of the author's main thesis; i. e., the major importance of prolonged iodine therapy in the successful treatment of hyperthyroidism. The surgical treatment of this condition, which in America at least is generally considered the treatment of choice, is relegated by the author to a place of secondary importance. In an appendix, certain neurotic conditions simulating hyperthyroidism are briefly discussed, together with the differential diagnosis by means of the basal metabolic rate. The book is well arranged throughout and, while little fundamentally new knowledge is presented, many of the apparently minor details give food for thought. A bibliography of several hundred titles completes the work.

Steps in the Dark. By Milton Mayer and John Howe. Cloth. Price, $2.50. Pp. 227. Chicago: Thomas S. Rockwell Company, 1931.

This volume includes a series of sketches for the popularizing of knowledge concerning science. Among the subjects of medical interest are the researches of Falk on influenza, of Luckhardt on ethylene, of Maud Slye on cancer, of Carlson on hunger and of Jacobson on relaxation. The first and the last of these are hardly sufficiently established or sufficiently significant to warrant the type of consideration that is given them. The interest of the other essays given in the book is of general scientific rather than of medical importance.

Die vierfache Muskelinnervation einschliesslich der Pathogenese und Therapie der progressiven Muskeldystrophie. Von Ken Kuré, Professor an der Universität Tokyo. Paper. Price, 20 marks. Pp. 320, with 137 illustrations. Berlin: Urban & Schwarzenberg, 1931.

This is an account of a large amount of research work on the cerebrospinal, sympathetic and autonomic innervation of muscle, all correlated with the investigations of other workers, which are subjected to a critical review. Chemical and pharmacologic investigations are reported as well as histologic studies and physiologic experiments. The chief practical application of interest to practicing physicians relates to the muscular atrophies. In a general way, so-called spinal muscular atrophy, including amyotrophic lateral sclerosis and neuritic muscular atrophy (Charcot-Marie type) are related to the cerebrospinal motor system, while it is claimed that in muscular dystrophy the sympathetic and autonomic innervation is at fault. The author has found that benefit has been obtained from treatment with atropine and pilocarpine, provided the motor nerve endings have remained intact.

The Cardiac Cycle. By Harrington Sainsbury, O.B.E., M.D., F.R.C.P., Consulting Physician to the Royal Free Hospital, Ventnor. Cloth. Price, $1.75. Pp. 79. New York: William Wood & Company, 1931.

Theories as to the phenomena of the cardiac cycle must, the author says, tally not alone with the facts of physiology but with the laws of physics and chemistry that operate as well in the living body as in the outer so-called inorganic world. When physiologic views are at variance with these laws, such views must yield; physics and chemistry are fundamentals. He makes the flow of the lymph a part of the circulatory act, a part of "one general, associated, liquid movement which obtains throughout the body—a movement essential to its corporate life." He stresses the pulse wave as an important pressor factor in the lymph circulation. The monograph is scholarly and well written. It will interest especially the student of cardiac physiology.

Arzneiverordnungsbuch der Deutschen Arzneimittelkommission. Fourth edition. Paper. Pp. 201. Leipzig: Verlag der Buchhandlung des Verbandes der Ärzte Deutschlands, 1930.

This collection of brief descriptions of remedies "that might be recommended to physicians" is edited by a committee somewhat analogous to the Council on Pharmacy and Chemistry of the American Medical Association, which was originated in 1911 by the Deutsche Gesellschaft für innere Medicin. The booklet itself differs from New and Nonofficial Remedies in that it gives information on official remedies also. It is, indeed, intended as a physician's handbook. Systematic attention is given to the cost of remedies and even of finished prescriptions, which seems to be demanded by the prevailing financial condition of the country, and most especially of the *krankenkassen.*

Medicolegal

When Disease Is Not an Accident

(Jackson v. Employers' Liability Assurance Corp. (N. Y.), 248 N. Y. S. 207)

The defendant insured the plaintiff, Jackson, as the owner of an apartment house, against loss from "bodily injuries, including death at any time resulting therefrom, accidently sustained by any person or persons while within or upon the premises." In one of the plaintiff's apartments, a 3 months' old infant, Cochenour, died from what the attending physician said was a general catarrhal condition, bronchitis and gastro-enteritis, "a toxic state of the general system as the result of exposure and chilling of the body surfaces." The administrator of the estate of the deceased infant sued Jackson, who he alleged had failed and neglected to heat, as required by law and under the terms of the lease, the apartment in which the infant lived. Jackson, he contended, had permitted the apartment to continue unheated, cold, damp, unsafe, and unhealthful, and was therefore liable for damages for the death. Judgment was rendered against Jackson, which he paid. He thereafter brought the present suit under his insurance policy to be reimbursed for the loss thus sustained.

The decision in the case turned on the answer to the question: Was or was not the death of a tenant from acute bronchitis and gastro-enteritis that were caused by the negligent and the unlawfully defective heating of an apartment over a considerable period of time an injury due to an accident, within the meaning of the insurance policy? The word "accident," said the supreme court, special term, King's County, from the point of view of the average man connotes an event of the moment rather than a condition which develops, progresses, and changes through a period of time. It means a happening, not only unexpected and unusual, but one referable to a definite and fixed time. Where disease was contracted from inhaling fumes gradually and over an extended period, the court could find nothing catastrophic or extraordinary in the happening, could not "fix time or place when a disease was contracted," and therefore held that a finding that disability was caused by accidental injury was not justified. *Rosenthal v. National Aniline & Chemical Co.,* 216 App. Div. 588, 215 N. Y. S. 621. In the present case illness was not occasioned by a definite or specific occurrence of a sudden and catastrophic nature and could not be regarded as the result of an accident.

Not only was the death in this case not the result of an accident, within the meaning of the policy, but it did not result from bodily injuries. The infant sustained no cut, abrasion, nor other traumatic injury, whereby poisonous substances or germs entered the system. Admittedly, a bodily injury may result from causes other than physical force, but in such cases it will usually be found that there has been an occurrence associated in the average mind with a known result, which follows as a natural and usually inevitable consequence. Such, for instance, are cases of typhoid fever caused by drinking water containing typhoid germs and cases of glanders caused by direct contact with infectious matter. These have been held to constitute bodily injuries accidentally suffered within the meaning of insurance policies. The circumstances of the death in the present case, however, were not similar. Insufficiency of the heating continued in varying degrees for nearly two months before death. The onset of the fatal illness could not be attributed to inadequate heating at any particular time. The extent to which other causes contributed to the death was conjectural. The lack of a cause relatively definite in point of time, catastrophic in character, and followed by a usual, if not inevitable, result distinguishes the present case from cases in which typhoid fever has followed drinking of contaminated water, tuberculosis has followed sudden inhalation of fumes, and glanders has followed direct contact with infectious substances.

Illness and death in this case were held, therefore, not to have resulted from a bodily injury accidentally sustained, and judgment was rendered in favor of the defendant insurance company.

License Revoked for Criminal Abortion

(Tapley v. State Board of Medical Examiners (Calif.), 295 P. 911)

Complaint was filed with the state board of medical examiners of California, charging that Tapley attempted to procure and did procure two criminal abortions, death resulting in each instance. In the course of the hearing, however, the complaint was amended so as to charge also that he "agreed and/or offered to" procure those abortions. The statute defines "the procuring or aiding or abetting or attempting or agreeing or offering to procure a criminal abortion" as unprofessional conduct. The board found Tapley guilty and revoked his license. He appealed to the superior court, city and county of San Francisco, which affirmed the order of the board, and thereupon he carried the case by a writ of certiorari to the district court of appeal, first district, division 2.

Tapley contended that the complaint was fatally defective because it did not state facts to show that he had procured or aided or abetted or attempted or agreed or offered to procure a criminal abortion, and that the words "criminal abortion" in the complaint as it then read represented nothing more than a legal conclusion based on undisclosed facts. All the facts necessary to the validity of a criminal complaint for criminal abortion, he contended, should be alleged in the complaint against him. The court of appeal pointed out, however, that both the district court of appeal and the Supreme Court of California had held contrary to Tapley's contention. To charge a physician in the language of the act with committing a criminal abortion is sufficient, without stating the facts enumerated in the penal code, because the language of the statute is sufficiently explicit to advise a person so charged of the particular kind of unprofessional conduct with which he is accused. Tapley contended further that the board had denied him "due process of law," by rejecting his defense that he had been acquitted by the superior court of Yuba County of one of the charges specified in the complaint. But the district court of appeal held that the state board of medical examiners was not bound by the acquittal of Tapley in the superior court and that evidence of that acquittal was properly rejected, quoting in support of its opinion 15 Calif. Jur. 114:

> Judgments in criminal proceedings are generally not competent or conclusive in civil proceedings, and vice versa, not only because ordinarily there is not the necessary identity of parties, but also because the same rules of evidence and degree of proof do not prevail in the two classes of proceedings.

Moreover, even if evidence of the judgment of acquittal had been admitted, it would have exculpated Tapley of only one of the offenses charged against him. In discussing Tapley's contention that the state board of medical examiners was without authority to allow the complaint against him to be amended by the insertion of new unsworn charges, without affording him an opportunity to plead to or put those charges in issue, the court pointed out that while such amendments were not commonly allowed in criminal actions, it was common practice to allow them in civil cases. Proceedings before the state board of medical examiners are more closely akin to civil than to criminal proceedings. The proceedings of the board, moreover, are not governed by the technical rules of pleading and practice and the analogies of criminal law may not be invoked. The provisions of the criminal code were not made applicable by the fact that the offense was described as "criminal abortion." Furthermore, the added charges of agreeing to perform criminal abortions were not so entirely foreign to the charges of actually performing them as to take Tapley by surprise or to jeopardize his right of defense.

The judgment of the court below affirming the order of the state board of medical examiners revoking Tapley's license was affirmed, and a rehearing was denied.

Trauma: Sarcoma of Bone Attributed to.—In February, 1926, the plaintiff, 17 years old and in good health, slipped and fell while descending a flight of stairs in the defendant's building, the accident being attributed to the condition of the steps and the lack of light in the stairway. Her left knee struck the concrete floor violently and stung and pained her. In the following few months the knee became swollen and continued to be painful. About a month after the accident she consulted a physician, but treatment failed to relieve the pain and swelling. The knee grew steadily worse. In September or October, 1926, an operation was performed and the plaintiff was shown "to have an infection of the bone called 'sarcoma' which had resulted from the injury." "Sarcoma," said the Supreme Court of Missouri, Division No. 2, before which the appeal was heard, "is a condition resulting from infection sometimes caused by traumatic injury." At the time of the trial, November, 1927, the plaintiff was not able to walk without the aid of a cane or somebody to lean on. The testimony of medical experts indicated that it was highly probable that an amputation would be necessary. There was substantial evidence, said the Supreme Court, tending to show that the tumor from which the plaintiff suffered was of a malignant type, likely to get into the blood stream, if it had not already done so, and carry "the infection" to other parts of the body, threatening not only the patient's health but her life. Under such circumstances the judgment for $25,000 awarded by the trial court was not unreasonable.—*Capstick v. T. M. Sayman Products Co. (Mo.), 34 S. W. (2d) 480.*

Hospitals: Liability of Superintendent of Insane Asylum for Crime Committed by Released Inmate.—Smith, an inmate of the Central Louisiana Hospital for the Insane, was released by its superintendent, the defendant in this case. On the day Smith was released, he killed the plaintiff's husband. A lunacy commission found that Smith was insane at the time of the homicide. The widow of Smith's victim, in suing the superintendent of the asylum, alleged that he deliberately and maliciously permitted Smith to have his liberty "when he knew that Smith was suffering from paranoia, which is recognized as an incurable disease, causing the sufferer to be extremely dangerous, with a persistent desire to take human life." The trial court gave judgment in favor of the defendant, which judgment the court of appeals of Louisiana, second circuit, affirmed. Through the board of administrators of the hospital, said the appellate court, the superintendent of the hospital was the representative of the state in conducting a state institution. In releasing inmates, he was vested with discretionary authority, in the exercise of which he released Smith. His good faith, therefore, cannot be questioned in a suit for damages resulting from an act of a discharged inmate, even though it be charged that in releasing that inmate he acted maliciously and without regard to the rights and safety of the public. Moreover, even though it were admitted that the superintendent was guilty of negligence, it could not be said that that negligence or the fact that Smith was released was the proximate cause of the death of the plaintiff's husband.—*Cappel v. Pierson (La.), 132 So. 391.*

Evidence: Scope of Expert's Opinion.—In a trial under an indictment charging murder by shooting, it was shown that the body of the victim was found on the railroad track, between the rails, while the head, which had been severed from the body, was lying about two feet from one of the rails. There was a gunshot wound in the left breast and another in one of the arms. The spinal column protruded from the body about 3 inches. The bone was not crushed, nor were the tissues bruised or mangled. The Court of Appeals of Kentucky held that it was not improper for a physician who had had considerable experience in cases of persons who had been run over by trains and who was testifying as an expert, to testify that he did not believe that "the railroad wheel cut this man's head off."—*Spencer v. Commonwealth (Ky.), 35 S. W. (2d) 319.*

Hospitals: Liability for Injury to a Special Nurse.—The plaintiff, a nurse, was caring for a patient in one of the rooms of the defendant hospital. She was not in the employ of the hospital but in the employ of the patient who occupied the room. According to her testimony, when she went on duty she told the head nurse on the floor that the floor of the room was slippery. On the following day she slipped, fell, and was injured. From a judgment in her favor, the hospital appealed to the Supreme Court of California. In her brief, the nurse claimed "a status enabling her to claim the same degree of protection as an employee in her place of employment" and that "the employer is bound to provide a reasonable safe place for his employee to work in." It clearly appears, however, said the court, that her status was that of an invitee and that she was in no sense an employee of the hospital. She had full knowledge of the condition of the floor during the afternoon of the first day of her employment in the hospital and for two hours in the forenoon of the next day. The hospital had no knowledge of the fact superior to that possessed by the nurse. If it was negligence for the hospital to maintain the floor in the slippery condition described by the nurse, there appears to be no escape from the conclusion that it was negligence for the nurse, with full knowledge of such condition, to continue in the use thereof. It was not necessary for the hospital to plead the contributory negligence of the nurse when that negligence was disclosed by her own testimony.—*Mautino v. Sutter Hospital Association (Calif.), 296 P. 76.*

Evidence: Qualifications of Physicians to Testify as to Firearms.—In a prosecution for murder, two physicians who examined the body of the deceased swore that from that examination they concluded that he had been shot through the head with a small bullet, either a 0.30 or 0.32 caliber. One of these physicians testified that the pistol submitted to him in the course of the trial was a 0.38 caliber pistol and in his judgment that was not the size of the bullet that made the wound in the head of the deceased. He testified further: "The shell you hand me now, is a 32, and looks like the bullet that made the wound." Concerning his qualifications to give such testimony, one physician said:

> To some extent I am familiar with the various sizes and calibers of pistols. In my practice I have had some experience in observing and treating gunshot wounds, but not a great deal of experience along that line. From my experience and observation of various caliber of guns and pistols, I think I can tell about what size caliber bullet that made the wound I saw there on Stegall's head.

The other physician testified:

> I have had quite a little experience in examining wounds of that character, and am familiar with the various sizes and calibers of guns and pistols. From the examination I made of the wound found on the deceased, in my judgment it was made with a 30 or 32 caliber bullet.

Objection was made to the testimony of these physicians on the ground that they were not shown to be sufficiently qualified to give their opinions. But, said the court of criminal appeals of Texas, we think the objections to the testimony of neither witness were tenable.—*Landry v. State (Texas), 35 S. W. (2d) 433.*

Evidence: Expert Opinion as to Causal Relation Between Disability and Accident.—If there is no dispute concerning the manner and cause of an injury or that an injury was sustained, a physician may directly testify that in his opinion a condition found later was caused by that injury. In this case there was no dispute that the plaintiff came in contact with a live wire and was severely injured. There was no error, said the Supreme Court of Illinois, in permitting a medical witness to state as his opinion that in all cases of severe electric shock a dilatation of the heart results, and to testify that he had found, both by clinical examination and by roentgenograms, that the plaintiff at the time of the trial was so affected.—*Wolczek v. Public Service Co. of Northern Illinois (Ill.), 174 N. E. 577.*

Insanity: Effect on Competence of Witness.—The fact that a person has been adjudged insane and confined in a state institution does not necessarily render him incompetent as a witness. Insane persons may have lucid intervals, and it is for the jury to determine whether the occurrence to which the witness testified occurred during a lucid interval and whether the witness is sane when he testifies.—*Conoway v. State (Ga.), 156 S. E. 664.*

Society Proceedings

COMING MEETINGS

Philippine Islands Medical Association, Manila, December 15-18. Dr. A. S. Fernando, 817 Taft Avenue, Manila, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

1: 45-88 (Aug.) 1931

*Menstrual Disorders of Interest to General Practitioner. L. E. Burch, Nashville, Tenn.—p. 45.
*Differential Diagnosis of Certain Fevers. E. M. Mason, Birmingham. —p. 50.
A Neglected Boil. G. E. Blue, Montgomery.—p. 53.
What the Young Doctor Should Know. W. M. Cunningham, Corona. —p. 57.

1: 89-136 (Sept.) 1931

Ear, Nose and Throat in Relation to General Diseases. J. B. Greene, Asheville, N. C.—p. 89.
Mechanism of Production and Treatment of Shock. A. Blalock, Nashville, Tenn.—p. 94.
Heart in Toxic Goiter. H. P. Shugerman, Birmingham.—p. 99.
Diagnosis and Treatment of Common Dermatoses. R. P. Lester, Mobile. —p. 104.

Menstrual Disorders.—Burch emphasizes the following facts: 1. Abnormal uterine bleeding is due to three conditions; namely, hyperplasia, ulcerative lesions (cancer is the most common example of these) and the accidents of either uterine or extra-uterine pregnancy. 2. All cases of abnormal uterine bleeding call for a complete physical examination of the patient, which must include a careful pelvic examination (both digital and with the speculum). 3. A confirmation of the diagnosis can be obtained from the laboratory in each of the three etiologic factors.

Differential Diagnosis of Certain Fevers.—Mason calls attention to the fact that typhus fever, tularemia and undulant fever must be classed with malaria, typhoid and tuberculosis as among the commoner causes of continued fever. All these maladies have certain symptoms and signs in common. Therapeutic efforts in these diseases should be symptomatic only until exact diagnosis is determined. History and physical examination retain their importance in differential diagnosis, but final diagnostic conclusions are dependent on certain laboratory tests that are available to every physician, wherever located. Discriminating use of these tests must be made at an early stage in fevers, in order that appropriate therapy may be instituted without delay.

American Journal of Diseases of Children, Chicago

42: 735-966 (Oct.) 1931. Part I

*Prognosis of Acute Endocarditis in Childhood: Analysis of One Hundred Cases. J. L. Morse, Boston.—p. 735.
*Significance of Retention Ratio of Calcium: Phosphorus in Infants and in Children. Genevieve Stearns, Iowa City.—p. 749.
*Basal Metabolism in Diabetic Children. Anne Topper, New York.—p. 760.
Anorexia, Loss of Weight and Capricious Appetite. Maud Loeber and H. L. Weinberger, New Orleans.—p. 767.
Growth in Height and Weight, and Retention of Nitrogen, Calcium and Phosphorus During Recovery from Severe Malnutrition. Genevieve Stearns and Dorothy L. R. Moore, Iowa City.—p. 774.
*Treatment of Toxicosis with Aid of Continuous Intravenous Drip of Dextrose Solution. S. Karelitz, New York.—p. 781.
Epidemic of Measles: Attempted Prophylaxis with Whole Blood. S. A. Blauner and H. Goldstein, New York.—p. 803.
Electrocardiographic Studies in Infectious Diseases: III. Diphtheria. C. Shookhoff and L. M. Taran, Brooklyn.—p. 811.
*Oxycephaly as Pathogenic Entity. A. N. Bronfenbrenner, Thiells, N. Y. —p. 837.
Xanthomatosis. H. B. Mettel, Indianapolis.—p. 858.
Lupus Erythematosus Disseminatus Acutus in Juvenile. C. C. Stewart and W. H. Goeckerman, Rochester, Minn.—p. 864.
Miliary Tuberculosis with Purpura in Infancy. M. S. Gaede and J. O. Vaughn, Los Angeles.—p. 869.
American Academy of Pediatrics. I. A. Abt, Chicago.—p. 874.
William Moss, ?-1802. J. Ruhrāh, Baltimore.—p. 886.

Acute Endocarditis.—Morse reports that of 100 children seen during the first attack of acute endocarditis, from ten to thirty years before his article was written, 36 are dead, 3 are cardiac invalids and 61 are alive and well. Thirty-seven of those who are alive and well have normal hearts, eighteen have slightly damaged hearts, and the hearts of six were not examined. The age at the time of the onset of the disease and the intervals elapsing between the onset and the time when the patients were first seen had no apparent influence on the prognosis. In the cases in which rheumatism seemed to be the cause, the results were not so good as in those in which the apparent cause was an infection of the upper respiratory tract. Myocarditis and pericarditis were unfavorable signs. In a large proportion of the fatal cases, death occurred early. Recurrences of the rheumatic infections were not as common as is usually believed, and repeated attacks did not always prevent recovery. Only one of the patients who are alive and well has a diastolic mitral murmur. The results apparently depended more on the care that the children received than on any other single factor.

Retention Ratio of Calcium: Phosphorus.—Stearns considers that a retention ratio of calcium: phosphorus of between 1.5:1 and 2:1 is normal for an infant. A retention ratio lower than 1.5:1 indicates a more rapid growth of soft tissue than of bone. A ratio of 2.1:1 or over is considered as probably indicative that a calcium shortage in the body is being corrected. From the reported retentions of calcium and phosphorus in artificially fed infants, a retention of at least 40 mg. of calcium and from 20 to 25 mg. of phosphorus per kilogram of body weight daily is considered desirable for artificially fed infants. The ratio of retained calcium to phosphorus will be somewhat lower in older children than in infants because of the great increase in the relative amount of muscular tissue during childhood. In a normal child, it is considered that the retention ratio will probably be lower than that observed in infants, but it should be greater than 1:1. In older children, the absolute retention of calcium and phosphorus per kilogram of body weight may be expected to decrease with the age of the child. A daily retention of at least 10 mg. of phosphorus per kilogram of weight is desirable even in older children. The retention of calcium should be at least equal to the retention of phosphorus. Retentions of calcium and phosphorus of less than 10 mg. per kilogram of body weight are probably not optimal in very young children.

Basal Metabolism in Diabetes.—Topper made 100 determinations of basal metabolism on 27 diabetic children at intervals of six months over a period of from one to four years. The average rate of basal metabolism obtained in twenty-eight tests made on patients between the ages of 5 to 10 years was plus 3 per cent; in twenty-one tests made on patients between the ages of 10 and 12, plus 4 per cent; in thirty-one tests made on patients between the ages of 12 and 15, plus 5 per cent; in eighteen tests made on patients between 15 and 17 years, plus 21 per cent, and in two tests made on patients over 17 years of age, plus 7 per cent. On the basis of her observations the author concludes that the rate of basal metabolism in treated diabetic children is essentially normal. There is an increase in the basal metabolic rate between the ages of 15 to 17 years, which is probably a manifestation of puberty. This increase occurs normally between the ages of 11 to 14 years, but as puberty seems to be somewhat delayed in diabetic children, as evidenced by the late appearance of the catamenia, the prepuberty rise in basal metabolism also occurs later than in normal children. With proper care, the condition of nutrition in diabetic children is normal. Sexual maturity, however, seems to be somewhat delayed. The internal secretory glands are so closely interrelated that a defect in one probably somewhat checks the action of the others.

Dextrose Solution in Toxicosis.—Karelitz emphasizes the fact that certain facts previously known and borne out by experience must constantly be kept in mind if good results are to be obtained in the treatment of toxicosis. He recapitulates these factors thus: 1. Treatment must be radical and prompt as soon as the diagnosis of toxicosis is made. If too much time is lost, treatment may be of no avail. (Supportive therapy, such as the administration of epinephrine and caffeine, should be given as may be indicated.) 2. All cases of toxicosis should be considered severe. The intravenous administration of dextrose and transfusion should be employed promptly, and the minimum period during which milk is withheld should be from twenty-four to thirty-six hours, or until the detoxification is complete. 3. Once the feeding of milk is started it should be given in small quantities of from 5 to 10 cc., and increased slowly, the limited tolerance for food during this period of adjustment always being respected. 4. When there is a relapse, treatment should be started again from the beginning with the intravenous administration of dextrose, transfusion of blood and withholding of milk. 5. Patients with intercurrent infections, especially otitis media and abdominal distention, should be treated actively. 6. Special nursing care is of the greatest importance. The intelligent nurse often sees the child in a truer light than the physician who calls only two or three times daily. Her observations are most important in deciding when to start to give the patient milk, when to increase the amount and when to discontinue the use of it. The author believes that the routine he outlines, especially the continuous intravenous administration of dextrose solution by the drip method, can be applied to almost all intoxications of early childhood, especially those associated with gastro-intestinal disturbances. This method can be employed for such conditions as severe acidosis originating in diabetic or in cyclic vomiting. In the former, a steady supply of dextrose with or without insulin may be administered; in the latter, dextrose could be given as needed. Some cases of peritonitis, bacteremia, dysentery, icterus, tetanus, bulbar poliomyelitis, postdiphtheritic paralysis of the palate and shock—surgical, traumatic or due to burns—also suggest themselves for this treatment.

Oxycephaly.—In the study of a series of clinical cases of oxycephaly as well as the data reported in the literature, Bronfenbrenner noted certain characteristics of a compensatory adjustment mechanism: When a premature closure of the coronary skull suture occurs, it impairs the normal adaptability of the skull to the growing brain of a child, and an effort to meet the demands of the growing brain brings about the oxycephalic deformity. Factors of the premature synosteosis and the subsequent compensatory struggle may naturally damage the brain and its adjacent parts. Most frequently the optic nerve undergoes severe atrophic changes. The degree of the damage sustained by the entire brain bears a direct relation to the efficiency of the compensatory process: the less effective has been the compensatory mechanism and, thus, the less outspoken are the morphologic features of oxycephaly, the greater the brain damage to be expected. Hence, a marked mental defect is found in rather mild, atypical instances of oxycephaly (and allied deformities of the skull), while in cases with outspoken oxycephalic features a mental defect might not enter into the clinical picture at all. Various intracranial infectious processes appear to be the main etiologic factors in the premature skull synosteosis of oxycephaly and allied deformities of the skull. The cases reported by the author emphasize the importance of tuberculosis and especially syphilis as probable etiologic factors of oxycephalic deformity.

Am. J. Roent. & Rad. Therapy, Springfield, Ill.

26: 511-638 (Oct.) 1931

Contribution of Roentgenology to Medicine and Surgery in Last Twenty-Five Years. J. T. Case, Chicago.—p. 511.
Progress in Development of Roentgen-Ray Apparatus. H. M. Imboden, New York.—p. 517.
Relation of American Journal of Roentgenology and Radium Therapy to Development of Radiology. A. C. Christie, Washington, D. C.—p. 523.
Contributions of a Quarter Century of Electron Physics to Roentgen-Ray Science. G. L. Clark, Urbana, Ill.—p. 528.
Historical Evolution of Roentgen-Ray Plates and Films. F. C. Martin and A. W. Fuchs, Rochester, N. Y.—p. 540.
Early American Roentgeniana. E. H. Skinner, Kansas City, Mo.—p. 549.
*Review of Pneumonoconiosis: Further Roentgenologic and Pathologic Studies. H. K. Pancoast and E. P. Pendergrass, Philadelphia.—p. 556.

Review of Pneumonoconiosis.—Pancoast and Pendergrass review the subject of pneumonoconiosis from the standpoint of its etiology, its pathology and its roentgenographic appearances. Pneumonoconiosis is a more or less necessary risk of commercial development in the progress of civilization, but its progress and serious aspects may be lessened by certain preventive measures in most instances. Its incidence in many industries apparently cannot be altogether eliminated. It has aroused widespread interest and has received a great amount of study during the past few years. The roentgenologic examination is the most important and accurate means of detecting its presence, especially in early cases, of studying its progress and of determining its extent and severity. Rapidity of progression is easily determined by serial study. The authors believe that roentgenology will be employed more and more extensively as the necessity of study of workers in hazardous industries becomes realized and regulations for protection and compensation laws are adopted in this country. The roentgenologist must be experienced in his work and honest in the expression of his opinions. It behooves the roentgenologist to become thoroughly familiar with the subject from every angle. The particular hazards of certain industries must be understood and the roentgenographic appearances more or less characteristic of some of them must be learned. Roentgenographic appearances are the expressions of pathologic changes, and to interpret them properly requires an intimate knowledge of the pathology of the condition. A summary is given of the present exact knowledge of the pathology of pneumonoconiosis based on necropsy study and animal experimentation. Various theories advanced in explanation of some uncertain points are given brief consideration. Various classifications of the degrees of progress of the condition are in use in different countries. Most of these have a clinical basis with which roentgenographic appearances must be made to conform. No one of them seems adequate or entirely satisfactory in its application to every dusty industry, especially from the standpoint of the roentgenologist. The authors propose a new pathologic-roentgenologic classification.

Archives of Ophthalmology, Chicago

6: 489-646 (Oct.) 1931

Holth's Iridencleisis Antiglaucomatosa: Follow-Up Examination of One Hundred and Twenty-Two Eyes from Six to One Hundred and Fifty-Nine Months After Operation. H. G. A. Gjessing, Drammen, Norway.—p. 489.
Presence of Vitamin A in Retina. A. M. Yudkin, New Haven, Conn.—p. 510.
Diagnostic Scales for the 1 Degree and 0.17 Degree Form Field Stimuli for Eight Principal Meridional Quadrants Taken Separately. C. E. Ferree, G. Rand and M. M. Monroe, Baltimore.—p. 518.
*Retinal Changes of Arteriosclerotic Heart Disease and Essential Hypertension. E. F. Horine and M. M. Weiss, Louisville, Ky.—p. 535.
Bitemporal Paracentral Scotoma: Case. C. E. G. Shannon, Philadelphia.—p. 544.
Lens Extract: Its Preparation and Clinical Use. E. L. Burky and A. C. Woods, Baltimore.—p. 548.
Gunshot Wound of Optic Nerve: Case. Hallie Hartgraves and P. C. Kronfeld, Chicago.—p. 554.
Development of Lens: Its Significance in Interpretation of Lenticular Abnormalities. B. Friedman, New York.—p. 558.
Buphthalmos Secondary to Congenital Iridocyclitis. W. G. M. Byers, Montreal.—p. 578.
*Conjunctivitis and Blepharitis Due to Yellow Mercuric Oxide. Beatrice M. Kesten, New York.—p. 582.
Tumors in Pituitary Area: Neurologic Symptoms. T. H. Weisenburg, Philadelphia.—p. 589.

Retinal Changes in Heart Disease.—Horine and Weiss believe that retinal changes must be correlated with the modern knowledge of heart disease. The failure of the authors of ophthalmologic textbooks to realize that arteriosclerotic heart disease and essential hypertension are distinctly different entities has caused much confusion. The blood pressure is elevated in essential hypertension but not in arteriosclerotic heart disease. Retinal changes in essential hypertension are quite different from those of simple arteriosclerosis. The terms albuminuric and nephritic retinitis are etiologically inaccurate and should be discarded. When referring to a patient with essential hypertension, one should use the term arteriolar sclerotic retinitis in place of arteriosclerotic retinitis. Retinal arteriolar sclerosis is usually progressive and, once developed, is permanent. The persistence of retinal arteriolar sclerosis permits of a diagnosis of essential hypertension even if the blood pressure is normal. Prognostically, changes in the fundus are of definite value.

Conjunctivitis and Blepharitis Due to Yellow Mercuric Oxide.—Kesten reports a case of conjunctival and skin sensitivity to yellow mercuric oxide. This sensitivity was confirmed by a disappearance of the inflammation when mercury ointment was discontinued, by a reappearance of the eruption following its application, and by positive patch tests.

Archives of Otolaryngology, Chicago

14: 413-550 (Oct.) 1931

*Production of Voice and Speech Following Total Laryngectomy. W. W. Morrison, New York.—p. 413.
*Rôle of Chronic and of Subacute Infections in Diabetic Children. D. M. Lierle and J. J. Potter, Iowa City.—p. 432.
Relation of Clinical to Bacteriologic Observations in Normal and Diseased Maxillary Antrums. F. B. Balmer, Chicago.—p. 440.
*Plastic Surgery of Nose. L. A. Peer, Newark, N. J.—p. 462.
Retropharyngeal Abscess: Newer Methods of Diagnosis and Treatment. F. D. Woodward, University, Va.—p. 467.
Myringitis Bullosa: Two Cases. E. F. Ziegelman, San Francisco.—p. 472.

Production of Voice and Speech Following Total Laryngectomy.—Morrison calls attention to the fact that with the increasing number of persons rendered voiceless by total laryngectomy for laryngeal cancer there is a growing need for a therapy of pseudovoice production without the larynx. Patients with a complete, chronic, air-tight stenosis of the larynx from any cause are similarly in need of a pseudovoice. Laryngeal prostheses, or artificial larynges, have so many disadvantages that their use should be restricted to the patient who cannot learn to produce any type of pseudovoice. There are several types of mechanism of the production of a pseudovoice. One is the true buccal or pseudowhispered voice. Almost every laryngectomized patient learns it without difficulty; it is so faulty and imperfect that it should be employed only when a more satisfactory type cannot be produced. The pharyngeal pseudovoice is usually fairly satisfactory. It is produced with the aid of a pseudoglottis formed at the back of the mouth or in the hypopharynx, where air that has been aspirated or swallowed into a vicarious air chamber in the lowest hypopharynx or the esophagus and expelled again is set into audible vibrations; such sounds are modified into the vowels and consonants of the pseudovoice. One of the most perfect forms of the pseudovoice is the esophageal type, in which the vicarious glottis lies at the esophageal mouth of Killian, and the vicarious air chamber is formed within the lumen of the esophagus, particularly in its cervical and upper thoracic portions. Here the mechanism of pseudovoice production is strikingly like that of normal speech. In some cases the cardiac end of the stomach, with the stomach air bubble, may be the vicarious air chamber, which furnishes a stream of air for a pseudoglottis at one of the sites mentioned. A fairly definite system of therapy directed toward teaching the patient to produce one or another of the types of pseudovoice has been elaborated. It seems essential that all surgeons who perform total laryngectomy or who have patients with complete, chronic laryngeal stenosis should be aware of the facts given and should attempt to aid these voiceless persons in securing a useful pseudovoice; such patients will not be cut off in their social intercourse, nor will they be unable to earn a living because of their lack of intelligible speech. Having in view the fact that almost all laryngectomized patients can learn a pseudovoice, the laryngeal surgeon should, if it is possible, so conduct the operation as to favor the production of the pseudovoice, at least, on anatomic and physiologic grounds.

Chronic and Subacute Infections in Diabetic Children.—According to Lierle and Potter, chronic and subacute infections of the upper respiratory tract are common among diabetic children. Operative procedure on the diabetic patient is no more hazardous than on the nondiabetic patient, if proper preoperative treatment is observed. In the cases studied by the authors, frequent improvement in the general health as well as in the tolerance for carbohydrates was seen following treatment for chronic infection. Chronic and subacute infections are much more frequently diagnosed in children when a thorough and complete otolaryngologic study is made. A child with diabetes should receive the same careful study for foci that would be given an arthritic or nephritic patient.

Plastic Surgery of the Nose.—Peer divides nasal deformities into two main classes: those in which all the normal nasal elements are present and those in which there is a loss of some of the elements. A high deviation in the cartilaginous septum will prevent straightening of the bony bridge. In lateral displacements of the lower part of the nose, the cartilage causing this displacement must be removed. A submucous resection and rhinoplasty are never combined at the same operation. When a submucous resection is performed first, an autoimmunity probably develops. This apparently protects the patient against infection during the second operation. Depressions are filled with lower lateral cartilage, ear cartilage or rib cartilage, depending on their depth. A tube flap from the arm is best suited for the repair of partial loss of the external nose.

Colorado Medicine, Denver

28: 430-472 (Oct.) 1931

Presidential Address. E. Delehanty, Denver.—p. 433.
*Nephritis: Recent Concepts and Modern Treatment. W. B. Yegge, Denver.—p. 441.
Factors Concerned in Causation of Uterine Anomalies: Case: Uterus Rudimentaris Solidus Duplex. C. W. Anderson, Denver.—p. 449.
Art of Medicine Versus Drugs. N. L. Beebe, Fort Collins.—p. 453.

Nephritis.—Yegge calls attention to the fact that no satisfactory classification of nephritis acceptable to both clinician and pathologist has yet been perfected. Despite the recent advances in tests for renal impairment, the most practical renal function test for the average clinician is the water concentration and dilution test of Volhard. One must have knowledge of the character of edema formation and salt retention before he proceeds with the treatment of the various forms of nephritis. The reason for the formation of the different abnormal urinary constituents must be understood before one can intelligently treat nephritis. The method to adopt in the treatment of the different forms of nephritis depends to a large extent on the concentrating power of the kidneys, the percentage of nonprotein nitrogen in the blood, the amount of fluid retention, and the general condition of the patient.

Journal of Thoracic Surgery, St. Louis

1: 1-112 (Oct.) 1931

*Postoperative Atelectasis and Collateral Respiration. C. M. van Allen and T. S. Jung, Peiping, China.—p. 3.
*Mortality of Operation for Acute Empyema. G. P. Muller, Philadelphia.—p. 15.
*Diagnosis and Treatment of Diaphragmatic Hernia. S. W. Harrington, Rochester, Minn.—p. 24.
*Hernia or Eventration of Diaphragm: Case. C. Eggers, New York.—p. 41.
*Importance of Respiratory Movements in Formation and Absorption of Pleural Fluids. R. C. Brock and E. A. Blair, St. Louis.—p. 50.
*Important Reflex Relationships Between Lungs and Other Viscera. F. M. Pottenger, Monrovia, Calif.—p. 75.

Collateral Respiration.—Van Allen and Jung describe experiments on dogs in which they found that collateral respiration was surprisingly efficient. A very small section of lung lobe proved to be sufficient for aeration of the whole. Continuation of aeration of the ligated division when the bronchi of the free section were flooded with viscid fluid (blood) can be explained only by supposing that the fluid was soon absorbed or disseminated to a large degree. Nevertheless, judging from the diffuse red color and distinct swelling of the injected lobule, it was evident that much of the fluid still remained in the peripheral airways. The normal capacity of even this small section of the lobe seems, therefore, to have been superabundant for maintaining the inflation. Also, a wide margin of safety was present as regards the amplitude of respiratory movements, since very shallow breathing afforded significant collateral exchange. The most effective obstacle to the function was inflammatory consolidation of the tissues at the border between the obstructed and free sections of the lobe, although here, too, there was remarkable tolerance. The tissues had to be almost completely consolidated before this factor alone eliminated interlobular exchange altogether. On the basis of their observation the authors conclude that interference with collateral respiration constitutes a necessary link in the sequence of events in the development of most instances of postoperative atelectasis. It is probable that every patient who develops severe bronchorrhea acquires bronchiolar obstruction of some degree and of significant duration, but atelectasis forms only when the collateral respiration is interfered with, as may well happen under the special circumstances attending convalescence from abdominal operations.

Mortality of Operation for Acute Empyema.—Muller reports a series of ninety-nine cases of acute empyema following pneumonia with six deaths (6.1 per cent). The death rate in children under 2 years was 15.4 per cent; in adults over 50 it was 40 per cent. In children under 14 years it was 3.9 per cent. The mortality was largely affected by the age, state of the lung, infecting organism, and infective complications. The author believes that, except for aspiration, thoracotomy should be delayed until the metapneumonic stage. Drainage in many cases can be effected by interrib tube drainage. In others, rib resection may be necessary. Rib resection is not open drainage if properly managed. Closed drainage is the proper method in nearly all cases and will effect a cure in nearly every case.

Diaphragmatic Hernia.—According to Harrington, diaphragmatic hernia is relatively common. The symptoms of diaphragmatic hernia are usually definite and depend on the amount of mechanical interference with function of the organs involved. Diagnosis from clinical symptoms only is often difficult, because the syndrome often stimulates that of other organic diseases, the most common of which are cholecystitis, gastric ulcer and heart disease. Roentgenologic examination of the stomach is important in establishing a definite diagnosis. Operative replacement of the herniated viscera into the abdomen, and repair of the abnormal opening in the diaphragm, is the only treatment which insures complete relief of symptoms. Palliative phrenicotomy may be used in selected cases in which operation is contraindicated. Preliminary phrenicotomy is often of value in the repair of enlarged hernial openings if there has been considerable loss of structure. Of the forty-five surgical cases reported by the author, radical operation was performed in thirty-eight. There were five operative deaths and no recurrences.

Hernia or Eventration of Diaphragm.—Eggers calls attention to the fact that there are three main varieties of maldevelopment of the diaphragm: 1. A false congenital hernia is one without a sac. It is really a defect in the diaphragm due to failure of its various components to fuse properly. Abdominal contents may slip through this defect and lodge in the thorax without any covering. 2. A true congenital hernia, on the other hand, develops through a weak spot in an already formed diaphragm. As the abdominal contents slip into the chest, the peritoneum and pleural layers covering the weak spot are pushed ahead and form the sac of the hernia. This condition is much less common than false hernia. 3. Eventration of the diaphragm is comparatively rare. It may be congenital or acquired. There is no defect or hole in the diaphragm; it is simply relaxed and atrophic and bulges into the thorax often to the level of the third or fourth ribs. The congenital form is said to be due to failure of development of the muscle elements or of the phrenic nerve. Not much is really known about the underlying cause. The acquired type is occasionally seen as a complication of an acute infectious disease probably by the toxin acting on the nerve. It may also follow trauma to the neck in which the phrenic nerve is injured, as for instance during difficult labor. In either event one finds or expects to find a dome shaped bulge extending from the diaphragmatic attachments into the thorax. One would expect a uniform bulge, and one might reasonably think that the circumference at the base, meaning at the diaphragmatic attachments, would be larger than at the apex of the dome. In that case no constriction of the contents would occur. A case observed by the author did not quite correspond to such a picture. It was no doubt an eventration, but it seemed at the same time to be a hernia. The explanation seems to lie in the finding that apparently not all the elements of the diaphragm were involved in the process. It was the central tendon which had become stretched to form the large intrathoracic sac while the muscular elements were sufficiently developed to form a thick margin of what looked like a hernial ring. It appeared to be a localized eventration, or even a sacculated or diverticular eventration, due to partial paralysis or weakness of the diaphragm.

Respiratory Movements.—Brock and Blair describe an adaptation of the heart-lung preparation of Starling as modified by Daly, by means of which the exudate from each lung may be separately collected for a period of hours. In this way it was possible to show that in a living preparation the formation of a pleural effusion is dependent on the respiratory movements, an observation that corroborates the conclusions previously drawn by Graham from experiments which utilized dead lungs in an artificial thorax. Under direct visualization, fluid can be seen to drip from an edematous lung in expiration, and it is suggested that the rise in negative pressure during the act of inspiration fills the subpleural lymphatics, and when expiration follows, these filled lymphatics empty part of their contents into the pleural space. An edematous condition was produced (1) by pouring acidified fluid directly into the bronchi, (2) by means of passive congestion, and (3) by an active inflammatory process; namely, exposure to a dilute chlorine mixture. On the living intact animal, after an edematous lung has been produced either by methods 1 or 2, fluid can be collected by means of a cannula inserted into the pleural space. In this way it was possible to show that the rate of formation of the fluid is dependent on the force of the respiratory movements and the associated pressure changes. A quiet, easy respiration produces a small effusion; a deep, labored breathing causes a much more rapid accumulation. In addition to fluid of an inflammatory nature passing from the lung to the pleural space, it has been shown that an ordinary Ringer's solution, if introduced into the bronchi and alveoli, will, by the respiratory movements, be made to pass into the pleural cavity. Part of a broth culture of a streptococcus was added to Ringer's solution and introduced into the lung in the same way. The organisms were found to pass through the pleura with the fluid almost immediately and without the aid of cellular activity. It is suggested that this may be an important mode of infection in the body and may indeed be the point of entry of some of the septicemias of obscure origin. Just as the rate of formation of fluid is influenced by the character of the respiratory movements, so also is the rate of absorption of fluid affected. With quiet, easy respiration the absorption is slow; with deep, labored breathing it is much more rapid. A large accumulation of fluid with a consequent large surface area of contact is in any case absorbed at a slightly more rapid rate than a smaller collection; this increase is, however, in no way comparable with the marked effect of increase of the force of the respiratory movements.

Reflex Relationships Between Lungs and Other Viscera.—Pottenger states that vagal afferent fibers are distributed to all the abdominal organs except the colon and sigmoid, and there is some question about the proximal colon. Vagal centers in the medulla, however, may be reflexly influenced by afferent stimuli carried over the sacral nerve, which together with the afferent vagal fibers would bring the centers into reflex relationship with all important thoracic, abdominal and pelvic viscera. Afferent vagal impulses from any viscus may express reflex activity through the pulmonary efferent vagal fibers, and by so doing, if the conditions are favorable, produce bronchial constriction and bronchial shortening, and an altered secretion of the glands of the bronchial mucous membrane, usually an increase in amount. Furthermore, afferent vagal impulses acting on the respiratory center may produce inhibition of inspiration (which carries with it an inhibitory effect on inspiration). These are the conditions noted in pulmonary collapse. It is also known that while stimulation of an afferent vagal fiber may act on the respiratory center and produce either inspiration or expiration, it usually produces the latter. Thus the mechanism through which the stimuli necessary to produce reflex effects in the lungs act is present and could be called into play by operations which affect either the vagus, pelvic or any other mediating nerve. In operation on the important viscera below the diaphragm, ample opportunity for excessive irritation of both sympathetic and vagus afferent systems exists. In explanation of the vagal preponderance of action in the lung it must be remembered that the afferent sympathetic neurons from the abdominal organs which unite with efferent sympathetic neurons and antagonize vagal activity mediate in the lower six thoracic segments and not in the upper six from which the pulmonary sympathetics arise. Sympathetic reflexes from the abdominal viscera would express themselves by inhibiting muscular action in the gastro-intestinal tract, as in the ileus which now and then occurs. So while the pulmonary vagal fibers are stimulated the antagonistic sympathetics are not, and so a condition favorable to overvagal activity is brought about, which might be sufficient to produce the syndrome of collapse in certain individuals, particularly those of the vagotonic type.

Journal of Urology, Baltimore

26: 499-597 (Oct.) 1931

*Urinary Diseases in Pregnancy: Consideration of Preventive and Therapeutic Measures in Treatment and Conservation Surgery. E. G. Crabtree and G. C. Prather, Boston.—p. 499.
*Ureteral Meatotomy: Clinical Evaluation. N. S. Moore, St. Louis.—p. 519.
Congenital Bilateral Ureterovesical Junction Stricture in Infants and Children. M. F. Campbell, New York.—p. 529.
*Empyema of Ureteral Stump. R. L. Dourmashkin, New York.—p. 553.
Leiomyoma of Bladder: Case. H. L. Kretschmer, Chicago.—p. 575.
Mobility of Trigon a Cause of Bladder Obstruction. T. N. Hepburn, Hartford, Conn.—p. 591.

Urinary Diseases in Pregnancy.—Crabtree and Prather emphasize as of extreme importance postdelivery care of urinary tract disease. From the hospital clinic all patients with urinary tract disease return to the outpatient clinic, where they are treated and followed until cured whether or not symptoms are present. Symptoms, especially those of cystitis, are extremely deceptive in pregnancy. Often urinary tract infection will exist for six months to a year after delivery before cystitis symptoms develop. The reason for this is not clear. On return to the outpatient clinic, the patients with surgical diseases are referred elsewhere for treatment. All cystoscopic treatment is given in the clinic. The ureters are seldom dilated except for definite *stricture. Pelvic lavage is not often used in the first three* months post partum. Infection cases are kept on formaldehyde drugs and increased fluids, and the social service department helps to arrange family duties so that the patient can get sufficient rest to enable her to return to health and strength as soon as possible. Most previously normal patients are bacterially well by the end of the fourth month. If pyuria or bacilluria persists beyond that time, complete cystoscopic study is made. It is in this group that many interesting anomalies are found together with cases suitable for plastic surgery and other corrective measures. A certain group of cases is found in which the patients show only atony from extreme degrees of overdistention. These recover in longer periods of time. Other pregnancies before complete recovery of the infection has taken place are undesirable.

Ureteral Meatotomy.—From a clinical and roentgenographic study of about seventy-five cases in which ureteral meatotomy was performed covering a period of seven years, Moore draws the following conclusions: 1. The operation, though comparatively minor, is technical and deserves just consideration. 2. When properly applied, the high frequency meatome is effectual and safe. It is possible to continue work higher up the ureter at the same sitting. There should be no alarming complications. There was no stricture formation following the operation in any of the cases observed. The author has found a number of cases in which the ureteral opening was amply large to admit number 7 to 9 catheters, after the passage of which there was temporary relief. The same patients have shown more permanent, if not definitely permanent, relief following a good wide incision of the opening. In a clinical and roentgenographic study of a series of cases it was impossible to find any symptoms or signs of regurgitation at any time following the operation.

Empyema of Ureteral Stump.—Dourmashkin reports four cases of empyema of the ureteral stump, which is a collection of thick pus within a dilated ureteral stump following incomplete ureterectomy. It differs from pyo-ureter in that the latter denotes pus mixed with urine coming from a kidney above. Of course, it is possible in cases of suppuration of the ureteral stump for the pus to be mixed with the regurgitated bladder urine secreted by the remaining kidney. Such was the case in at least one of the patients, in whom the aspirated purulent contents of the empyemal sac contained urea. That persistence of pyuria may follow nontuberculous nephrectomies in which a diseased ureter was not carefully followed down to the bladder leading to the empyema of the stump is a condition which has not been sufficiently emphasized in the literature. The comparative infrequency of ureteral stump suppuration following nephrectomies on human beings would indicate that while normal ureters do retain their patency they do not, however, exhibit a tendency toward infection. The local pathologic changes consist in a marked periureteritis, dilatation of the ureter and firm adhesions of the stump to the surrounding tissues. Absence of local symptomatology was the feature in all the cases in the author's series. None of the patients had symptoms of bladder irritability. Cystoscopy uniformly showed the escape of thick tapelike masses of pus from the orifice (or orifices) on the affected side. The latter was definitely stenosed in two cases. In one patient a ureterocele was present with two ureteral orifices, each leading to an empyematous sac. The escape of pus from the ureteral orifice on the nephrectomized side, as visualized by the cystoscope, does not necessarily indicate the presence of a dilated ureter filled with pus. To complete the diagnosis it is essential to outline the ureteral stump with an opaque solution injected into the stump. Cases that are free of vesical or other local symptoms and do not show a tendency to extension of the infection into the remaining kidney should be left alone. The possibility of involvement of the remaining kidney should always be borne in mind. It is for this reason that the infected stump should be excised in recent cases which have not yielded to cystoscopic treatment and in cases of persistent cystitis. The extirpation of the sac is generally a difficult procedure because the sac is firmly embedded in the pelvis and is adherent to the pelvic vessels.

Michigan State M. Soc. Journal, Grand Rapids

30: 739-808 (Oct.) 1931

Certain Principles in Treatment of Obstructive Jaundice. W. Walters, Rochester, Minn.—p. 739.
Granulocytopenia, Agranulocytic Angina and Related Blood Dyscrasia. C. E. Stellhorn and A. L. Amolsch, Detroit.—p. 743.
Newer Phases of Childhood Tuberculosis. H. C. Metzger, Detroit.—p. 760.
*Incidence of Heart Disease in Rheumatic Fever. W. J. Wilson, Detroit.—p. 765.
Carcinoma of Larynx. A. C. Furstenberg, Ann Arbor.—p. 770.
Anesthesia in Head and Neck Surgery: Various Types and Methods. R. Maurits, Grand Rapids.—p. 776.
*Significance of Cardiac Pain. H. A. Freund and W. B. Cooksey, Detroit.—p. 781.
Large-Holed Head Mirror. E. Amberg, Detroit.—p. 784.

Heart Disease in Rheumatic Fever.—Wilson emphasizes the fact that, although acute rheumatic fever is one of the chief causative agents of cardiac disease, the latter may not be apparent at the time of recession of joint symptoms, so that all patients need careful observation for at least three months following such an attack and six months periodic physical examinations thereafter. Patients should not be discharged from the hospital unless the white blood count is normal. All patients should be tonsillectomized at a reasonable period following the acute attack of rheumatic fever, if there is the least sign of tonsillar infection. Immediate apparent effects of rheumatic fever are less important than late results, which often cause marked valvular deformity, more common in the mitral, quite common in the aortic, and occasionally in the other valves.

Cardiac Pain.—According to Freund and Cooksey, the cardinal points on which a true differential diagnosis of cardiac pain may be made are as follows: A careful history of the nature, duration, inciting factor and location of the pain, with its possible radiation, is of major importance. It is often possible, without touching the patient, to make a diagnosis of cardiac pain on the basis of a careful history alone. One is frequently surprised by the gross neglect of this essential detail. In the physical examination, all the signs of arteriosclerosis should be carefully sought, for, although coronary thrombosis and angina pectoris often do occur without demonstrable signs of a generalized arteriosclerosis, they are most commonly found in arteriosclerotic individuals. The blood pressure, with especial reference to the diastolic reading, is a highly important detail. Well over fifty of the patients with coronary thrombosis had a previous hypertension, and the association of angina pectoris with simple coronary sclerosis and a previous or present hypertension is well known. In coronary thrombosis, possibly the one most important sign is a blood pressure below 100 systolic or a sudden fall of blood pressure below a previous known level. The authors have been able to make a diagnosis of true cardiac pain on this basis alone, in two atypical cases of coronary thrombosis. While the results of physical examination of the heart and lungs sometimes closely approach the normal, a cardiac dilatation, a muffled first heart sound, and râles at the base of the lungs are of extreme importance in accurate diagnosis. The electrocardiograph has perhaps done more to clarify the field of cardiac pain than almost any other factor. While in the present state of knowledge one must admit that coronary sclerosis may be present in severe degree without alteration in the electrocardiogram being present, nevertheless in many cases of simple coronary sclerosis electrocardiographic evidence is obtainable. During the last two years the authors followed closely nineteen cases of coronary thrombosis. Because of the availability of the modern portable electrocardiograph, they have been able to make careful and repeated electrocardiographic studies in these nineteen cases. There has not been a single case in which, sooner or later, definite evidence of coronary thrombosis with cardiac infarction was not found, electrocardiographically. In some cases the evidence was obtained as early as one hour after the complete occlusion; in one case such evidence did not appear until the end of forty-four hours after the occlusion. In other cases, several days had elapsed before the initial tracing was made. All these nineteen cases have been verified by subsequent history or by necropsy.

Minnesota Medicine, St. Paul

14: *879-942* (Oct.) 1931

*Cardiology and the General Practitioner. D Luten, St. Louis.—p. 879.
Prenatal Care and Careful Conduct of Delivery. M. C. Berghenn, Hawley.—p. 884.
Recurring Preeclamptic Toxemia: Its Clinical Significance. R. D. Mussey, Rochester.—p. 889.
Accidents of Labor. J. R. Manley, Duluth.—p. 892.
Allergy and Pneumococcus Lobar Pneumonia. H. A. Reimann, Minneapolis.—p. 898.
Vincent's Disease. R. I. Rizer, Minneapolis.—p 901.
Founding of Ramsey County Medical Society. J. M. Armstrong, St. Paul.—p. 904.
Ramsey County Medical Society's Library. H. L. Taylor, St. Paul.—p. 906.
Treatment of Anal Fissures. H. F. Bayard, Minneapolis.—p. 910.
Diverticulitis of Colon and Sigmoid: Its Complications and Treatment. A. E. Benjamin, Minneapolis.—p. 912.
Proposal of Wholesale Passive Immunization Against Poliomyelitis Epidemics. J. C. McKinley, Minneapolis.—p. 921.

Cardiology.—Luten believes that simple tachycardia in many instances represents an adjustment of the circulation to pathologic processes and should not receive special therapeutic consideration. Therapy in such cases obviously should be directed not toward slowing the heart but toward mitigating the cause of the tachycardia. Mere slowing may indeed on occasion be harmful. The initiation of direct measures to lessen the heart rate in hemorrhage, in pneumonia, in fright or in exophthalmic goiter would appear as illogical as the taking of similar means to slow the respiratory rate in the same circumstances; as illogical as trying to slow it after exercise. The assumption is widespread that tachycardia itself is attended by serious danger if long continued; that the heart cannot long withstand rapid beating. This conception has received an emphasis which appears to be unwarranted. The heart is physiologically adapted to rapid action. Increase in rate alone does impose added burden, but a normal heart bears the burden well. Furthermore, compensatory adjustments usually supervene. Even a diseased heart usually appears to suffer little impairment of function from tachycardia of considerable extent, provided the muscle is activated in normal fashion; i. e., provided the tachycardia originates at the normal pacemaker. In a diseased heart obviously the danger of fatigue from tachycardia may be enhanced, but even in such cases compensatory adjustments in stroke output and in vascular tension usually relieve the heart of this added danger. In many instances, indeed, the accelerated action itself appears to be a compensatory adjustment, tachycardia representing the effect of circulatory impairment, not its cause. The chief indication of therapy in such cases should be the protection of the heart from further danger, not an unphysiologic adaption to injury already received. Not only is it inadvisable, in many instances, to slow the rate in simple tachycardia, but in adults it is rarely possible by therapeutic means to do so. In therapeutic dosage digitalis rarely, if ever, in adults causes slowing of consequence by direct action on the cardio-inhibitory apparatus. The physician who pushes digitalis in such an attempt, even if slowing is desirable, subjects his patient to the serious danger of digitalis intoxication. Abnormal rhythms in the vast majority of instances do not require special therapeutic measures. Some of them frequently are valuable hints in diagnosis and useful guides in therapy. They call for general examination and treatment, not merely for examination of the heart and cardiac drugs. The abnormal rhythm itself is rarely dangerous; it is frequently annoying. Special treatment, therefore, when indicated, is rarely an emergency measure. In most instances a complete history is more important than a complete cardiac examination.

New England Journal of Medicine, Boston

205: 747-792 (Oct. 15) 1931

*Myelotomy in Treatment of Syringomyelia. T. J. Putman and D. Munro, Boston.—p. 747.
*Sarcoma of Bladder in Children: Case. E. R. Mintz, Boston.—p. 756.
*Results of Use of Stramonium Datura in Parkinson's Disease and Postencephalitic Parkinsonism. O. J. Menard and L. M. Hurxthal, Boston.—p. 759.
Progress in Laryngology. L. A. Schall, Boston.—p. 763.

Myelotomy in Syringomyelia.—Putnam and Munro present four cases of syringomyelia in which the patients were treated by myelotomy. One patient showed practically no improvement. Immediate improvement was slight in two others, but striking in one instance. From a survey of the literature it appears that the operation has had a favorable, but not curative, result in the great majority of cases. In some instances the results have been permanent, in others the disease has progressed. Symptoms have apparently not been increased by operation. Only one fatality is recorded in cases reported since 1926. Roentgen treatment probably acts by arresting gliosis, operation by relieving pressure. Sometimes one, sometimes the other, may be more effective. Radiation should always be employed as an adjunct to operation. Pending further experience, the authors believe that operation should be reserved for patients who are not relieved by roentgen treatment, or who have root-pains, or spinal block or who are incapacitated by the disease. To these it offers real hope of improvement.

Sarcoma of Bladder.—Mintz reports a case of sarcoma of the bladder in a boy aged 5 years. He states that approximately fifty-five authentic cases of sarcoma of the bladder have been reported in children under 5 years of age. The etiology is obscure. The pathologic changes are varied. All histoid elements have been reported. Hematuria is usually not a presenting symptom. Frequency, dribbling, acute retention and bed-wetting are common symptoms. Recurrences are frequent and early. Metastases are not common. The course is invariably fatal. Operation seems to hasten death. In all the recent cases, diagnosis was made by cystoscopy. Partial excision of the bladder wall, excision of the tumor and diathermy have been tried with little success. Total cystectomy with resection of the urethra is the only hope for cure.

Stramonium in Parkinson's Disease.—From their observations in twenty-two cases, Menard and Hurxthal conclude that stramonium datura in adequate dosage is a helpful drug in attempts to alleviate some of the distressing symptoms of either Parkinson's disease or postencephalitic parkinsonism. They believe that it should be tried in all such cases.

205: 793-840 (Oct. 22) 1931

*Gastro-Intestinal Hemorrhage in Disease of Gallbladder. F. W. White and I. R. Jankelson, Boston.—p. 793.
Treatment of Acute Empyema and Pulmonary Abscess. W. Whittemore, Boston.—p. 797.
*Branchial Cysts and Fistulas. W. M. Shedden, Boston.—p. 800.
*New Treatment for Acute Bursitis. T. K. Richards, Boston.—p. 812.
Progress in Psychiatry. I. H. Coriat, Boston.—p. 814.

Hemorrhage in Disease of Gallbladder.—According to White and Jankelson, severe gastro-intestinal hemorrhage in disease of the gallbladder is rare, but the possibility is important in diagnosis. Such cases are apt to be mistaken for peptic ulcer, especially if the history is doubtful and if adhesions cause some deformity of the duodenum or pylorus. In cases of hematemesis with jaundice, the possibility of gallbladder disease should be considered. Coincident ulcer and gallstones are not rare and may be misleading; the ulcer may heal after hemorrhage and only gallstones be found at a later roentgen examination. Jaundice was not an important factor in causing the hemorrhage in a group of cases studied by the authors. Hepatitis associated with gallbladder disease may be a factor, but the evidence from the cases studied is not clear. In a few cases the hemorrhage may be explained by perforation of the gallbladder, fistula formation, or hemorrhagic infarction of the gallbladder; in the large majority, Naunyn's theory seems best, that toxins in the blood coming from the infected gallbladder cause bleeding from the mucosa of the stomach or duodenum, as occurs in cases of essential hematuria or epistaxis.

Branchial Cysts and Fistulas.—Shedden presents a summary of the modern concept of the embryology of "branchial" cysts and fistulas. He further shows, in the study of forty-two cases of branchial cyst and nine cases of fistula, that: (1) they occur in young adult life; (2) the disease exists a long time before the patient demands relief because it progresses slowly and pain appears late, if at all, and usually only from secondary infection; (3) tuberculosis rarely causes secondary infection; (4) it does not affect the patient's general health; (5) the diagnosis should not be difficult if one keeps the entity in mind, and (6) the treatment involves complete removal of the pathologic process.

Treatment for Acute Bursitis.—While treating a patient for boils who also had symptoms consistent with a mildly inflamed subacromial bursa, Richards gave intramuscular injections of iron-arsenic compounds along with other forms of therapy. This particular patient was a chemist by profession, familiar with drugs and unusually observant of his own reactions to them. After each injection of the iron-arsenic compound he volunteered the information that this bursa felt better. Shortly after this the bursa became more acute and it was decided to try the iron-arsenic preparations intravenously. Accordingly, iron cacodylate was chosen because of its apparently less severe reaction and 1 cc., or one-fifth grain, was given. The dose was repeated every third day, increasing the amount by 1 cc. until 5 cc., or 1 grain, was given. Following the first injection there was a distinct improvement; the shoulder was less painful and its motions were freer. At the end of five injections the acute symptoms had disappeared and there was no restriction of the shoulder motions. The result was so startling that other patients suffering from acute bursitis were asked if they were willing to try these injections—all being told beforehand that there was no adequate explanation for the drug working. In all there were approximately seventy cases of acute bursitis—the subacromial, subscapular and infrapatellar bursae being involved. In many cases of acute bursitis uncomplicated by a focus of infection elsewhere in the body there was a lessening of the acute symptoms within three or four hours following the first injection. The vast majority of the patients returned to their normal activities or play with complete absence of symptoms and no restrictions of motions, from ten to twenty-one days following the first intravenous injection. In this series all other forms of treatment were avoided so as not to complicate the picture of recovery. There was no restriction of use beyond that of pain. In other words, patients were told to use their arms as much as they pleased or could. Both iron-arsenite and iron cacodylate were employed, but the iron-arsenite seemed to be more frequently accompanied by immediate severe reactions, which were not present when the cacodylate was used. Accordingly, the use of the iron-arsenite was abandoned and all injections were made with the iron cacodylate. The author gives three case histories to illustrate the effectiveness of this form of treatment of acute bursitis.

Ohio State Medical Journal, Columbus

27: 761-840 (Oct.) 1931

Fractures of Ankle. R. G. Carothers, Cincinnati.—p. 781.
*Clinical and Pathologic Study of Seventy Cases of Mitral Stenosis. I. H. Einsel, H. S. Feil and C. S. Stone, Cleveland.—p. 783.
Pathology of One Hundred Consecutive Tonsils. H. L. Reinhart, Columbus.—p. 786.
Use and Abuse of Clinic Conferences in Health Department. F. R. Dew, Clairsville.—p. 789.
Ohio Mental Hygiene Needs. E. A. North, Cincinnati.—p. 791.
Some Phases of Poliomyelitis. E. G. Horton, Columbus.—p. 796.
Clinical Laboratory Findings in Thyroid Diseases: Brief Review of Literature and of Starling-Loving Hospital Records. Edith M. Miller, Columbus.—p. 799.

Mitral Stenosis.—In a clinical pathologic review of seventy cases of mitral stenosis, Einsel and his associates found that fifty-six, or 80 per cent, of the patients died as the result of cardiac disability; i. e., congestive failure, embolism, and subacute bacterial endocarditis. The period of invalidism with failure varied from one month to eight years, with an average duration of twenty-two months. Subacute bacterial endocarditis caused death in three instances (4.2 per cent). Auricular fibrillation was present during the hospital admission in forty-one cases of the failure group, or 58 per cent. The heart weights varied from somewhat below normal to 800 Gm. and did not definitely depend on the combined valve lesion. Tricuspid stenosis could be predicted in 39 per cent of the cases with mitral stenosis and aortic valvulitis.

Philippine Islands Med. Association Journal, Manila

11: 345-384 (Sept.) 1931

Preventive Medicine in Retrospect. P. F. Russell, Manila, P. I.—p. 345.
*Blood Viscosity in Normal Filipinos. J. S. Hilario, Manila, P. I.—p. 361.
Value of Botelho Reaction in Cases of Malignant Tumors. F. Ira-Concepción, Santo Tomas, P. I.—p. 365.
Cardiac Beriberi in Infants. J. Albert.—p. 367.
Cardiac Beriberi in Nursing Infants. J. Albert.—p. 368.

Blood Viscosity.—Hilario's material consisted of about 100 males recruited from among medical students of 20 to 30 years of age, and apparently in good health. Those who, after the viscosity test had been made, became ill were discarded, so that the figures noted represent the values obtained from those who were apparently healthy at the time of the examination and afterward. The test was made in most of the cases three hours after luncheon. It was found that the blood viscosity averaged 5.18, the maximum being 6.36 and the minimum 3.98. These figures may be slightly higher than usual, owing to the finger massage applied prior to the pricking of the finger tip in an effort to get enough blood to fill the viscosimeter tube up to the 0 mark. The relatively better nutrition of the subjects included in this series, compared with the state of nourishment of the general masses, may be held partly responsible for the slightly increased figures.

Public Health Reports, Washington, D. C.

46: 2539-2599 (Oct. 23) 1931

*Effect of Hemolytic Streptococci and Their Products on Leukocytes. Alice C. Evans.—p. 2539.
Rat-Flea Survey of Port of St. Thomas, Virgin Islands. E. H. Carnes.—p. 2558.

46: 2601-2661 (Oct. 30) 1931

Dental Decay and Corrections Among School Children of Different Ages. Amanda L. Stoughton and Verna Thornhill.—p. 2608.

Effect of Hemolytic Streptococci on Leukocytes.—Evans summarizes thus the results of experiments on the effect of hemolytic streptococci and their products on leukocytes: In filtrates of broth cultures of Streptococcus scarlatinae there is a trace of a substance toxic for leukocytes which can be detected by the bioscopic test but not by the phagocytic test or by the deterioration of cells as shown in stained microscopic preparations. The addition of kidney tissue, blood serum, or washed leukocytes to broth cultures does not increase the production of the leukocidic substance. On the other hand, the addition of washed erythrocytes to broth cultures definitely promotes its increase. The thermolability of the trace of leukocidic substance in filtrate of broth culture is the same as that of the more abundant leukocidic substance in filtrate of culture in broth plus erythrocytes. Presumably the two substances are identical. A specific neutralizing agent for the leukocidic substance could not be demonstrated in normal or immune serum. Two lines of evidence are offered which show that the leukocidic substance is not identical with hemolysin. They differ in thermolability. There is no correlation of toxicity for the two types of blood cells manifest by filtrates of cultures grown under varying conditions. The decrease of leukocidic substance in purified and concentrated skin toxin indicates that leukocidic substance and skin toxin are not identical.

South Carolina Medical Assn. Journal, Greenville

27: 245-271 (Oct.) 1931

Aid of Roentgen-Ray Films in Confirming Diagnosis of Chest Conditions. W. G. Byerly, State Park.—p. 250.
Selective Sterilization. B. O. Whitten, Clinton.—p. 255.
Spontaneous Rupture of Hydronephrotic Kidney; Case. D. Jennings and L. R. Kirkpatrick, Bennettsville.—p. 259.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 733-786 (Oct. 24) 1931

Harvey: The Man, His Method, and His Message for Us Today. R. Hutchison.—p. 733.
*Toxic Goiter: Course of Disease, and Its Treatment. F. R. Fraser.—p. 739.
Psychic Pain and Psychoses. H. Devine.—p. 742.
*Puerperal Sepsis: *Importance of Early Treatment.* A. R. Hobbs.—p. 744.
Some Common Complaints Amenable to Spinal Treatment. T. Marlin.—p. 746.
Two Cases of Sarcoma Following Known Trauma. D. H. Haler.—p. 748.

Toxic Goiter.—Fraser calls attention to the fact that there are patients, usually young women, who, with no evidence of previous thyroid trouble, develop the typical picture of exophthalmic goiter, and in the course of a few months, or longer, recover apparently completely. There are others, with a similar onset and initial recovery, who relapse, perhaps repeatedly. There are others who never quite recover but in whom the condition subsides only to light up again and again with greater or less severity over a number of years. In those with repeated relapses or exacerbations the thyroid is usually found to be nodular. There are still other patients, who, when they come under observation for the first time because of toxic symptoms, present a nodular gland. It is known that the gland responds to physiologic stimuli, such as puberty, pregnancy and lactation, by increased activity; and it responds in a similar way to pathologic stimuli, such as infections; but in both conditions signs of thyroid intoxication are rare, and the gland usually returns by involution to a normal condition. If the involution is not perfect, and areas of hyperinvolution and of hypoinvolution result on repeated occasions without the occurrence of symptoms of intoxication, a nodular gland might be expected to develop in time. This accounts for those patients in whom such a gland is found on the first appearance of toxic phenomena. The absence of nodules and of fibrosis is not evidence that hypertrophy, hyperplasia and involution have not occurred, but a nodular goiter is good evidence of a past history in which the thyroid has had to respond to stimuli and then has involuted, perhaps repeatedly and over a number of years. These nodules are not adenomas, but true adenomas may occur, though much more rarely; and pathologic processes, other than those that result from the involutionary changes described by Rienhoff, are encountered in glands associated with toxic goiter. The author believes that patients with thyroid intoxication, or toxic goiter, should be treated as early as possible by removing any causal factors that can be discovered, by the administration of iodine, and by reduction of the amount of functioning thyroid tissue. This can be accomplished with the greatest certainty by operative treatment; but if a surgeon with special skill and experience in such cases is not available, treatment by roentgen rays or radium should be tried while the case is still mild and the patient able to work.

Puerperal Sepsis.—In his experience, Hobbs finds it exceptional for women with puerperal sepsis to develop pyrexia at the outset. Many patients have offensive lochia, red lochia, and purulent discharge and yet for some days remain entirely apyrexial. Further, while severe cases of puerperal inflammation are due to bacterial invasion of the raw uterine surfaces, there is a much greater number in which inflammatory changes occur as a result, purely, of the retention of placental fragments and blood clot, and those are the cases that frequently lead to chronic invalidism among women. Unfortunately, little or nothing is done at the very time when much could be done, and the most favorable opportunity to deal with them is lost. Following labor or miscarriage, much blood and serum, together with fragments of placenta, normally continue to escape from the uterus for several days. Anything that interferes with the natural drainage will undoubtedly give rise to signs and symptoms; one must learn to recognize these, for they are certainly the earliest heralds of possible trouble later. A full appreciation of their significance will enable one to begin early and efficient treatment, by which alone one can hope to reduce maternal mortality.

Glasgow Medical Journal

35: 201-256 (Oct.) 1931

*Certain Preliminary Observations on Treatment of Anemia by Tryptophan and Histidine. D. P. Cuthbertson, J. Fleming and E. M. K. Stevenson.—p. 201.
State of Capillaries in Certain Pathologic Lesions and Their Condition in Cases of Sudden Death. Jean W. Symington.—p. 210.

Treatment of Anemia by Tryptophan and Histidine.—Cuthbertson and his associates state that tryptophan and histidine injections produced an early but small reticulocyte response in two cases of *pernicious anemia. There was no appreciable* increase in the hemoglobin or red cell count. In one case the injections were given intravenously and in the other subcutaneously. In two cases of "secondary" anemia in which the patients had had prolonged courses of iron, arsenic and liver *without benefit, tryptophan and histidine* caused a moderate reticulocyte response in one case, but no improvement in the blood count in either. Both patients, however, responded rapidly to subsequent iron and arsenic. Subjective improvement during the course of injections was noted in three of the four cases. The *injections* caused little discomfort and appeared to be harmless. While the cases described are "insufficient" in number to afford conclusive evidence in support of the theory of Fontès and Thivolle, they indicate that these amino-acids have some stimulant action on the hematopoietic tissue.

Journal Obst. & Gynec. of Brit. Empire, Manchester

38: 495-742 (Autumn) 1931

Induction of Labor by Puncture of Membranes. Report of Series of Cases and Consideration of Cause of Onset of Labor. G. Fitzgibbon.—p. 495.
Lower Uterine Segment Cesarean Section. J. St. G. Wilson.—p. 504.
Anatomy and Physiology of Upper Urinary Tract in Pregnancy, and Their Relation to Pyelitis. D. Baird.—p. 516.
*Relation Between Blood Extravasation and Albuminuria. O'D. Browne.—p. 525.
Low-Back Pain *in Gynecologic Practice Due to Lumbosacral and Sacro-*Iliac Strain. J. Young.—p. 535.
*Id. W. A. Cochrane.—p. 538.
Radiotherapy and Fistula Formation in Cervical Carcinoma. G. I. Strachan.—p. 542.
Birth Control Studies. 1. On Ingress of Semen into Uterus During Coitus. H. M. Carleton and H. Florey.—p. 550.
Id.: 2. Observations on Effects of Common Contraceptives on Vaginal and Uterine Mucosae. H. M. Carleton and H. Florey.—p. 555.
Nature of Functional Uterine Bleedings. D. J. Cannon.—p. 565.
Investigation into Part Played by Maternal Syphilis in Causation of Fetal and Infant Death and Effects of Antenatal Treatment. E. J. Pye-Smith.—p. 578.
Chondrosarcoma of Uterus. S. J. Hartfall.—p. 593.
Pregnancy and Diabetes, with Especial Reference to Carbohydrate Metabolism of Placenta. I. M. Rabinowitch.—p. 601.
Aberrant Ovarian Tissue in Round Ligament of Uterus. Jean McNeill.—p. 608.
Case of Early Carcinomatous Change in Hyperplastic Endometrium. J. Bamforth.—p. 614.

Blood Extravasation and Albuminuria.—According to Browne, damaged tissue, or altered blood, liberates some toxic substance which is known to act in minute quantities and with great rapidity. All authorities are agreed that uteroplacental changes, under different names, are almost invariably found in association with some kidney lesion. Albuminuria develops with great rapidity subsequent to blood extravasation and tissue injury in different parts of the body. Removal of the toxin producing extravasation is followed by rapid recovery of the endothelial damage. These four facts force one to the conclusion that albuminuria undoubtedly develops subsequent to the reabsorption of some toxic material. This can occur as the result of an extravasation in any part of the body.

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Journal of Physiology, London

73: 115-218 (Oct. 22) 1931

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Lancet, London

2: 887-944 (Oct. 24) 1931

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Journal de Chirurgie, Paris

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Immediate Surgical Treatment of Open Fractures of Leg. G. Roux and J. Sénèque.—p. 515.
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FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 733-786 (Oct. 24) 1931

Harvey: The Man, His Method, and His Message for Us Today. R. Hutchison.—p. 733.
*Toxic Goiter: Course of Disease, and Its Treatment. F. R. Fraser.—p. 739.
Psychic Pain and Psychoses. H. Devine.—p. 742.
*Puerperal Sepsis: Importance of Early Treatment. A. R. Hobbs.—p. 744.
Some Common Complaints Amenable to Spinal Treatment. T. Marlin.—p. 746.
Two Cases of Sarcoma Following Known Trauma. D. H. Haler.—p. 748.

Toxic Goiter.—Fraser calls attention to the fact that there are patients, usually young women, who, with no evidence of previous thyroid trouble, develop the typical picture of exophthalmic goiter, and in the course of a few months, or longer, recover apparently completely. There are others, with a similar onset and initial recovery, who relapse, perhaps repeatedly. There are others who never quite recover but in whom the condition subsides only to light up again and again with greater or less severity over a number of years. In those with repeated relapses or exacerbations the thyroid is usually found to be nodular. There are still other patients, who, when they come under observation for the first time because of toxic symptoms, present a nodular gland. It is known that the gland responds to physiologic stimuli, such as puberty, pregnancy and lactation, by increased activity; and it responds in a similar way to pathologic stimuli, such as infections; but in both conditions signs of thyroid intoxication are rare, and the gland usually returns by involution to a normal condition. If the involution is not perfect, and areas of hyperinvolution and of hypoinvolution result on repeated occasions without the occurrence of symptoms of intoxication, a nodular gland might be expected to develop in time. This accounts for those patients in whom such a gland is found on the first appearance of toxic phenomena. The absence of nodules and of fibrosis is not evidence that hypertrophy, hyperplasia and involution have not occurred, but a nodular goiter is good evidence of a past history in which the thyroid has had to respond to stimuli and then has involuted, perhaps repeatedly and over a number of years. These nodules are not adenomas, but true adenomas may occur, though much more rarely; and pathologic processes, other than those that result from the involutionary changes described by Rienhoff, are encountered in glands associated with toxic goiter. The author believes that patients with thyroid intoxication, or toxic goiter, should be treated as early as possible by removing any causal factors that can be discovered, by the administration of iodine, and by reduction of the amount of functioning thyroid tissue. This can be accomplished with the greatest certainty by operative treatment; but if a surgeon with special skill and experience in such cases is not available, treatment by roentgen rays or radium should be tried while the case is still mild and the patient able to work.

Puerperal Sepsis.—In his experience, Hobbs finds it exceptional for women with puerperal sepsis to develop pyrexia at the outset. Many patients have offensive lochia, red lochia, and purulent discharge and yet for some days remain entirely apyrexial. Further, while severe cases of puerperal inflammation are due to bacterial invasion of the raw uterine surfaces, there is a much greater number in which inflammatory changes occur as a result, purely, of the retention of placental fragments and blood clot, and those are the cases that frequently lead to chronic invalidism among women. Unfortunately, little or nothing is done at the very time when much could be done, and the most favorable opportunity to deal with them is lost. Following labor or miscarriage, much blood and serum, together with fragments of placenta, normally continue to escape from the uterus for several days. Anything that interferes with the natural drainage will undoubtedly give rise to signs and symptoms; one must learn to recognize these, for they are certainly the earliest heralds of possible trouble later. A full appreciation of their significance will enable one to begin early and efficient treatment, by which alone one can hope to reduce maternal mortality.

Glasgow Medical Journal

35: 201-256 (Oct.) 1931

*Certain Preliminary Observations on Treatment of Anemia by Tryptophan and Histidine. D. P. Cuthbertson, J. Fleming and E. M. K. Stevenson.—p. 201.
State of Capillaries in Certain Pathologic Lesions and Their Condition in Cases of Sudden Death. Jean W. Symington.—p. 210.

Treatment of Anemia by Tryptophan and Histidine.—Cuthbertson and his associates state that tryptophan and histidine injections produced an early but small reticulocyte response in two cases of pernicious anemia. There was no appreciable increase in the hemoglobin or red cell count. In one case the injections were given intravenously and in the other subcutaneously. In two cases of "secondary" anemia in which the patients had had prolonged courses of iron, arsenic and liver without benefit, tryptophan and histidine caused a moderate reticulocyte response in one case, but no improvement in the blood count in either. Both patients, however, responded rapidly to subsequent iron and arsenic. Subjective improvement during the course of injections was noted in three of the four cases. The injections caused little discomfort and appeared to be harmless. While the cases described are "insufficient" in number to afford conclusive evidence in support of the theory of Fontès and Thivolle, they indicate that these amino-acids have some stimulant action on the hematopoietic tissue.

Journal Obst. & Gynec. of Brit. Empire, Manchester

38: 495-742 (Autumn) 1931

Induction of Labor by Puncture of Membranes. Report of Series of Cases and Consideration of Cause of Onset of Labor. G. Fitzgibbon.—p. 495.
Lower Uterine Segment Cesarean Section. J. St. G. Wilson.—p. 504.
Anatomy and Physiology of Upper Urinary Tract in Pregnancy, and Their Relation to Pyelitis. D. Baird.—p. 516.
*Relation Between Blood Extravasation and Albuminuria. O'D. Browne.—p. 525.
Low-Back Pain in Gynecologic Practice Due to Lumbosacral and Sacro-Iliac Strain. J. Young.—p. 535.
*Id. W. A. Cochrane.—p. 538.
Radiotherapy and Fistula Formation in Cervical Carcinoma. G. I. Strachan.—p. 542.
Birth Control Studies. 1. On Ingress of Semen into Uterus During Coitus. H. M. Carleton and H. Florey.—p. 550.
Id.: 2. Observations on Effects of Common Contraceptives on Vaginal and Uterine Mucosae. H. M. Carleton and H. Florey.—p. 555.
Nature of Functional Uterine Bleedings. D. J. Cannon.—p. 565.
Investigation into Part Played by Maternal Syphilis in Causation of Fetal and Infant Death and Effects of Antenatal Treatment. E. J. Pye-Smith.—p. 578.
Chondrosarcoma of Uterus. S. J. Hartfall.—p. 593.
Pregnancy and Diabetes, with Especial Reference to Carbohydrate Metabolism of Placenta. I. M. Rabinowitch.—p. 601.
Aberrant Ovarian Tissue in Round Ligament of Uterus. Jean McNeill.—p. 608.
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Journal de Chirurgie, Paris

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Journal d'Urologie Médicale et Chirurgicale, Paris

32: 201-296 (Sept.) 1931

Residual Nitrogen in Urinary Diseases. G. Basile.—p. 201.
*Renal Insufficiency in Prostatic Hypertrophy Without Vesical Residue. T. Katz.—p. 207.
*Modification of Microbic Flora in Treatment of Hemorrhagic Cystitis. L. Sas.—p. 221.

Renal Insufficiency in Prostatic Hypertrophy Without Vesical Residue.—Katz asserts that hypertrophy of the prostate is a mechanical or dynamic obstacle to the evacuation of urine, that the bladder is the first to be affected by this difficulty, and that it combats the dysuric state and the increasing obstacle by hypertrophy of its musculature. When the hypertrophy becomes insufficient, the patient enters the period of the disease characterized by residual urine. An examination of 1,500 cases of hypertrophy of the prostate revealed that in 30, or 2 per cent, there was no residual urine and the renal function was not impaired. The conclusions were as follows: Intravenous pyelography in prostatic hypertrophy is advantageous. Operative procedures should not be postponed because the vesical residue is minimal. Various laboratory methods should be used in examination for renal function; in prostatic hypertrophy these examinations should not be limited to dysuria or pollakiuria phenomena. The general health of the patient and the condition of his cardiovascular system must also be considered in surgical intervention. The author plans to incorporate roentgenography of the seminal vesicles in relation to the ductus deferens and the ureters in a great number of cases of hypertrophy of the prostate without residue and to interpret the latter through anatomic researches in a large series of cadavers.

Modification of Microbic Flora in Treatment of Hemorrhagic Cystitis.—Sas based his observations in Bacillus coli and streptococcus inflammation of the bladder on a consideration of the semeiology, cystoscopic picture, character of the infectious development, and finally the response to treatment. He found that colibacillary cystitis is a secondary infection, the primary source being the upper urinary tract; colibacillary cystitis is responsive to treatment. On the other hand, streptococcus and micrococcus cystitis is a primary infection and much more difficult to eradicate. When general and local treatment of a coccus cystitis did not avail, the author decided to substitute for the streptococcus and micrococcus flora a Bacillus coli flora; this made subsequent treatment much more efficacious. The reaction of the urine was of great importance in the process of transition. The following procedures were incorporated: Acidification of the urine was accomplished by diet and the administration, three or four times a day, of from 15 to 20 drops of diluted hydrochloric acid and 0.5 Gm. of methenamine. Local therapy consisted in lavage of the bladder with 3 per cent solution of hydrogen dioxide followed by instillation of 0.5 per cent solution of silver nitrate or 2 per cent solution of strong silver protein. This was continued until the pseudomembrane covering the mucosa disappeared (controlled by the cystoscope). The removal of the pseudomembrane removed the collections of bacteria and urine that prevented the adjustment of the reaction and the action of therapeutic agents. Then followed the injection into the bladder of 10 cc. of a suspension of a twenty-four to forty-eight hour agar culture of Bacillus coli (one billion organisms). The process of acidification of the urine was continued, but the methenamine was entirely discontinued and the local therapy was discontinued for two or three days. Bacteriologic control of the flora governed any necessity for repetition of the injection of the bacterial suspension. When the flora has changed to a monobacterial infection, the acidifying process is discontinued and the usual treatment for colibacillary cystitis is instituted. Lavage of the bladder may or may not precede treatment. Treatment consists of preliminary lavage of the bladder with 0.05 per cent solution of potassium permanganate and instillations with 0.5 per cent solution of silver nitrate or 2 per cent solution of strong silver protein. Once the infection has changed to a colibacillary cystitis, alkali treatment supplants the acidification. It is important to know that acidity of the urine favors the development of B. coli and alkalinity the development of the streptococcus. However, the author remarks that Bacillus proteus may grow equally well in a strongly alkaline or a markedly acid medium. Four case histories (three of chronic cystitis and one of acute hemorrhagic cystitis) are reviewed.

Revue Française de Gynécologie et d'Obst., Paris

26: 465-520 (Sept.) 1931

Dysmenorrhea at Puberty. V. Riche.—p. 465.
*Lysate-Vaccines in Puerperal Infections and Abscess of Breast. P. Brocq and L. Duchon.—p. 483.
Biologic Diagnosis of Pregnancy by Animal Tests. R. Bouc.—p. 505.

Lysate-Vaccines in Puerperal Infections and Abscess of Breast.—In 1926, Duchon proved that Bacillus pyocyaneus in contact with many living pathogenic bacteria such as diphtheria, staphylococcus, streptococcus, pneumococcus and gonococcus demonstrated bactericidal, bacteriolytic and antitoxic properties. He and Brocq explain the phenomena that take place as a state of immunization, active vaccination with development of antibodies, manifested in the body as intense leukocytosis, phagocytosis, decrease or disappearance of the bacterial agents of the focus of infection and tinctorial and morphologic modification of the infecting pathogens. They utilized "lysate-vaccines" prepared by the filtration of cultures of the etiologic organisms grown in contact with pyocyaneus. They have reported elsewhere results in various surgical cases of phlegmons, abscess, lymphangitis and cellulitis as well as medical cases of bronchopneumonia and purulent pleural exudates due to streptococci. The authors report the treatment in eleven cases and the resultant improvement in nine cases of streptococcus septicemias. Thirty patients were treated for abscess and lymphangitis of the breast. Culture of closed abscesses gave pure cultures of hemolytic staphylococci while cultures of open abscesses gave mixed cultures of staphylococcus, streptococcus and other more or less pathogenic organisms, such as common skin pathogens, enterococcus and Bacillus pyocyaneus. The lysate of the staphylococcus was used for the treatment of the closed abscesses and the lysates of the staphylococcus and streptococcus were used for the treatment of the open abscess. The authors used mixed lysate-vaccines, especially in those types of diseases with particularly frequent secondary infections. Lymphangitis of the breast was frequently improved by the application of wet dressings. When lysate-vaccinotherapy was substituted, there was rapid improvement in four or five days. Their studies suggested that there may be a close relationship between uterine and general infection, and that the uterine flora should therefore be studied before labor and before obstetric intervention. Several instances of concomitant streptococcic infection of the ureter in the male led the authors to believe that sporadic streptococcus infection like gonococcus infection may be a result of sexual contamination. In streptococcus puerperal septicemias, the authors utilize the lysates of the streptococcus and also the polymicrobic lysates of the bronchopulmonary infections. They find, however, that immunity against streptococci is of short duration and insurance against recurrence is not always guaranteed.

Revue Neurologique, Paris

2: 257-340 (Sept.) 1931

*Acute Optic Neuritis Associated with Myelitis. Milian, Lhermitte, Schaeffer and Horowitz.—p. 257.
Tonic Reflexes of Posture. O. Balduzzi.—p. 280.
Malarial Therapy and Cerebral Lesions in Dementia Paralytica. D. Paulian and I. Bistriceanu.—p. 293.

Acute Myelitis with Optic Neuritis: Case.—Milian and his co-workers summarize their case as follows: A man, aged 37, on presentation gave negative reactions to blood and spinal fluid tests and in the following days proved to have signs of paresis in the lower limbs and visual disturbances which appeared about the same time as the signs of paresis. Shortly after the onset, the patient presented a distinct spasmodic paraplegia with marked exaggeration of the reflexes and extension of the toes, accompanied by dystrophies in subjective and objective (tactile and deep) sensitivity ascending to the sixth and seventh thoracic nerves and sphincterial difficulties marked by impotence. The paraplegia was accompanied by an increase in the albumin content of the spinal fluid without appreciable hypertension. The visual difficulties consisted in a decrease in visual acuity with edematous papillitis accompanied by a central scotoma for colors. In spite of treatment, the paraplegia increased; the spastic manifestations and accentuation of the sensitivity were the two chief manifestations. Appearance of an ascending urinary infection was concomitant with the sphincterial dystrophies, complicated finally by visceral localizations, particularly pulmonary and renal, which led to death in from six to seven weeks after the onset. Anatomically, the essential, fundamental lesion was present in the spinal cord and consisted in areas of demyelinization accompanied by neuroglial reactions, and in the optic nerve there was degeneration and inflammation. The authors believe that the case represented an autonomic disease, probably due to a neurotropic virus, different from other diseases described in the past. This disease of the brain and spinal cord was elective for the spinal cord and optic nerves, differing from analogous syndromes such as may be produced by syphilis of the brain and spinal cord, multiple sclerosis, necrotic myelitis, epidemic encephalitis, and all the types of leuko-encephalitis. They do not agree with other workers that this disease is a syndrome.

Giornale di Clinica Medica, Parma

12: 953-1038 (Sept. 20) 1931

*Pseudovalves of Heart. G. Dagnini.—p. 953.
Observations on Sudanophil Leukocytes. M. Gavazzeni and L. Beltrametti.—p. 995.
Organotherapy in Anemia. A. Lo Jacono.—p. 1007.

Pseudovalves of Heart.—Dagnini carried out an anatomopathologic study on the peculiar formations termed "pseudovalves of the heart," which are observed on the parietal endocardium of the left ventricle, with especial frequency in insufficiency of the aortic valves. From a critical examination of the literature on the subject and from researches in seven personal cases, he is convinced that the development of the pseudovalves is not controlled by a single factor but that they may originate from thickening of the tissues, inflammatory processes of the wall, or from a changed disposition of the muscles—of congenital origin, through the action of the aortic regurgitation in cases of insufficiency of the aortic valves, or through the exclusive mechanical action of the aortic regurgitation in the defect mentioned, a regurgitation which causes first circumscribed thickening of the tissues of the endocardium and secondly cavities in the form of pockets or pouches. This hypothesis finds support in the constant association with the aortic valvular defect, in the localization below the point of the maximal valvular defect, and in the histologic changes that are observed, indicating a repeated mechanical stimulus.

Riforma Medica, Naples

47: 1470-1504 (Sept. 28) 1931

Angioneurotic Disturbances of Lower Limbs (Buerger's Disease). D. Giordano.—p. 1471.
*Differential Venosocapillary Glycemia in Diseases of Liver. A. Tarsitano. —p. 1474.
Conservation of Control Serums for Wassermann Test. G. Delpiano.— p. 1481.

Differential Venosocapillary Glycemia in Diseases of Liver.—In ten patients with diseases of the liver (three cases of Morgagni-Laënnec cirrhosis, one of cancer, two of syphilitic hepatomegalia, two of liver disorder due to cardiac stasis, one of hepatomegalia due to chronic malaria, and one of hepatomegalia with icterus and fever), Tarsitano studied the behavior of the capillary glycemic curve, the venous glycemic curve and the differential venosocapillary curve after oral administration of 1.5 Gm. of dextrose per kilogram of weight. According to the Falta method, he compared the values obtained for (1) glycemia fasting, (2) the degree of hyperglycemia in an absolute sense and relative to the glycemia fasting, (3) the degree and duration of the hypoglycemic phase when that occurs, and (4) the degree of differential venosocapillary glycemia—fasting and during the tolerance test. From the results obtained, it may be deduced that the differential glycemia is usually lower, the more grave the functional lesion that affects the liver, and that often when there is a low differential glycemia the hypoglycemic phase is absent. Since to these two characteristics the Falta school attributes the value as exponents of a deficiency of the insular function, it must be assumed that in grave liver disorders there exists this deficiency of functioning. The results obtained show the need of taking account of the hepatic factor whenever one applies the test of the differential venosocapillary glycemia with dextrose to determine the functioning of the pancreas.

Semana Médica, Buenos Aires

38: 945-1028 (Sept. 24) 1931. Partial Index

*Bleeding Nasopharyngeal Fibroma of Puberal Period in Boys: Treatment. H. Zubizarreta.—p. 953.
Physiopathology of Pulmonary Circulation in Mitral Stenosis. R. Naveiro.—p. 957.
*Surgical Semeiology of Peripheral Nerves and Treatment of Cranial Trauma. M. Balado.—p. 982.
Traumatic Congenital Pemphigus with Epidermal Cysts. E. P. Fidanza, F. Carrillo and T. Ocaña.—p. 990.

Bleeding Nasopharyngeal Fibroma of Puberal Period in Boys.—Zubizarreta advises high voltage roentgen treatment for the special type of bleeding nasopharyngeal fibroma which occurs in some boys during puberty. In his patient, aged 15, a large tumor developed in the right nasal fossa and extended to the maxillary sinus, filling it entirely. The exact nature of the growth was proved by its characteristics (red color, hard consistency and other peculiarities), by the symptoms (especially profuse bleeding) and by a biopsy of the tumor. High voltage roentgen treatment caused the regression of the tumor till complete disappearance, and the results still persist seven years later.

Surgical Semeiology of Peripheral Nerves and Treatment of Cranial Trauma.—Balado describes the impairment of certain muscular functions, under nervous control, after trauma with injury of the spinal or cranial nerves or their roots. The condition of the nerves or nerve roots supplying the given muscle may be determined by the exploration of the functions of the muscles. In acute cranial trauma or fractures of the skull, the most important symptoms are those referred to the cerebral injuries. Cerebral edema, which is a constant occurrence in cranial trauma with injury of the cortex, is limited to the proximity of the traumatized area and may undergo a spontaneous regression if the injury of the cortex is minimal. However, if the injury involves laceration of the pia mater, cerebral edema spreads through the entire lobe of the traumatized side, and it spreads also through the entire hemisphere if there is coexistent hemorrhage. The condition determined by the hemorrhage may be more or less grave. The least serious intracranial hemorrhage is the subpial (nonfatal), caused by injury of the cortex by a splinter of the lamina interna, detached by trauma. Next in importance is the intradural hemorrhage caused by the detachment of a vein at its site of insertion, due to concussion of the brain. In this type of trauma the vault of the skull may or may not have suffered a fracture. In the first case (with fracture of the vault) some cerebral substance is lost through the gap of the fracture. The prognosis for the life of the patient may be favorable if the development of meningitis can be prevented. In the last case of this type of trauma (without fracture of the vault), either the intradural hemorrhage acts as an internal tumor, rapidly causing intracranial hypertension and death of the patient, or it escapes into the orbital cavities through a communication of the skull (provided the concussion produced a slight crack at its base); the victim's life in this case is spared as under the action of a decompressive trephination. However, all these possibilities of saving the victim's life do not minimize in the least the seriousness of this type of hemorrhage. Next in importance is the intradural hemorrhage caused by the section of a branch of the sylvian artery by a cutting splinter. This type of hemorrhage, as well as rupture of the cavernous sinus following a radiating fracture of the base of the cranium is always fatal. The victim either rapidly dies or rapidly falls into coma and dies during the first twelve hours. In cases of craniocerebral trauma caused by a projectile, this acts as the traumatic and fracture-causing agent as well as the resecting agent whose principal damage is that caused by the section of the choroid plexuses which determines the profuse hemorrhage into the ventricles.

Siglo Médico, Madrid

88: 249-272 (Sept. 12) 1931

Large Epithelioma of Limbus Corneae: Removal. M. Marin Amat.—*p. 249.*
*Asthma: Intrapulmonary Treatment by Epinephrine. F. Fernández Arratia.—*p. 250.*

Intrapulmonary Treatment by Epinephrine in Asthma.—García Vicente's method, a simple technic for intrapulmonary therapy, was described in the *Deutsche medizinische Wochenschrift* (**54**:1835 [Nov. 2] 1928; abstr. The Journal, Jan. 19, 1929, p. 273). Fernández Arratia used this technic for the intrapulmonary administration of an emulsion of epinephrine and iodized peptone for the treatment of asthma. The only contraindication is the presence of hypersensitiveness to iodine. The mixture for the injections is prepared thus: In a sterilized capsule, from 3 to 10 drops of a 1:1,000 solution of epinephrine, from 5 to 10 drops of iodized peptone (and sometimes from 5 to 10 drops of a 1 per cent solution of jaborandi) are mixed with from 2 to 4 cc. of the substance which is going to be used as a vehicle (such as aromatized oil or eucalyptol). The mixture is given in endobronchial injections, at a temperature of 38 C., either daily or every other day (about eight injections). In a large number of cases treated by the author, the treatment failed only once. In this case, desensitization, climatotherapy, and some other medical treatments also failed. The presence of some lesions of the organs of reproduction was proved in this patient, and sterilization by roentgen irradiations caused relief. The mixture of epinephrine, iodine and jaborandi seems to have an action on the mechanisms of sensitization, by paralyzing the vagus nerve and by stimulating the sympathetic nerves. Among the asthmatic patients observed by the author, tubercle bacilli were not found. The endobronchial treatment of asthma should be given during the intervals between the attacks. The author concludes that asthma is an allergic and anaphylactic disease. Desensitization should be resorted to, though it should be previously determined whether or not the patient has any other disease responsible for the causation of asthma. If so, he should be properly treated; one should remember that the allergens in asthma are represented by the products of the underlying disease. Roentgen rays, desensitization, and surgical and medical treatments, sometimes give good results, while at other times they fail. The technic of endobronchial treatment with epinephrine and iodized peptone is simple and the treatment gives good results. Any general physician may give the injections; anesthesia is not used. When the problems of desensitization are better understood, the combined treatment of desensitization and endobronchial therapy according to the author's method will offer the means of complete recovery in asthmatic patients.

Archiv für Klinische Chirurgie, Berlin

166: *361-548* (Sept. 5) *1931*

Intra-Abdominal Cysts. H. Danziger.—p. 361.
*Development and Treatment of Carbuncles. J. T. Huang.—p. 372.
Atresia Ani Urethralis. B. Parin.—p. 386.
*Reflex and Toxic Vascular Shock. N. A. Gurewitsch.—p. 401.
*Callus Formations on Tibia Without Fracture. L. J. Ollonqvist.—p. 412.
Clinical Significance of Congested Gallbladder and Dyskinetic Disturbances in Biliary Passages. I. M. Talman.—p. 425.
Histologic Changes in Epiphyseonecroses: Peculiar Form of Joint-Mouse Formation in Osteochondritis Deformans Juvenilis. G. Brandt and F. Klages.—p. 474.
Typical Injuries of Motorcycle Riders. H. R. Paas.—p. 500.
Practical Significance of Sport Injuries. O. Schmith.—p. 514.
Injection Treatment of Varicose Veins and Its Results. S. Hansen.—p. 527.
Genesis and Therapy of Onychogryposis. F. Kazda.—p. 542.
Gangrene of Finger Following Sting by Trachinus Draco (Sting Fish). F. Kazda.—p. 546.

Treatment of Carbuncles.—Huang describes the household remedies that many Chinese employ in the treatment of carbuncles. The author has tried the various methods of treatment that have been recommended in the medical literature of recent years. However, because many of the patients were already in a desolate state, he found that radical treatment was necessary and he resorted to radical excision in the healthy tissue, a procedure which Riedel advocated in 1891 and to which attention had been called in later years by other authors. The excision is done with ethyl chloride anesthesia. Ligation of veins is dispensed with, and a pressure bandage of iodoform gauze is applied. In the further treatment the author takes advantage of the modern methods of shock therapy. He employed this method in uncomplicated carbuncles as well as in carbuncles in diabetic patients. Of fifty-nine patients treated in this manner, two died; the death of one was the result of tetanus, and the other one had for years been subject to cardiac weakness. The diabetic patients all recovered from the carbuncle, and the healing was rapid. The author considers every carbuncle a sign of acidosis and he thinks that, in addition to the total excision, the administration of insulin or of insulin and carbohydrates should not be neglected.

Reflex and Toxic Vascular Shock.—In reviewing the literature on shock, Gurewitsch did not find definite statements on the essential changes in the vascular system in reflex shock; that is, he found no information on the types of vascular changes following stimulation of sensory nerves. In order to solve this problem he made experiments on dogs. On the basis of his observations and the results of other investigators, he classifies the disturbances that are combined under the term surgical (traumatic) shock into two main types: (1) the toxic vascular shock (anaphylactic, infectious, histamine and other forms) with a definite etiology, an exact localization and a clear pathologico-anatomic picture, and (2) the reflex shock, which has the character of a functional disturbance and in which the pathologico-anatomic changes are not clearly defined. According to the mass and type of the injured tissues, to the character and to the intensity of the irritation of the sensory nerve, there may develop either the toxic shock, the typical reflex shock, or a combination of the two types. The severity of the reflex shock is dependent on the condition of the organism and on the severity of the irritation. The irritation of the sensory nerve is accompanied by a marked increase in the blood pressure. After the irritation ceases, the blood pressure sinks below the normal and then gradually returns to normal. The sudden death following intense irritation of the peripheral nerves is not always caused by shock manifestations but may also be caused by changes in the organism which are connected with the abnormally increased blood pressure and which precede the reflex shock. The rapid increase in the blood pressure and the subsequent decrease should be taken into consideration in every surgical intervention on weakened and aged persons, in whom the blood vessels are brittle. The alveolar and the spermatic nerves are much more susceptible than many other sensory nerves and should therefore be treated with especial care.

Callus Formations on Tibia Without Fracture.—As a military physician, Ollonqvist observed a large number of soldiers who had a peculiar disorder of the tibia. He gives several case reports and also shows roentgenograms. All of the patients were young (about 20 years) and otherwise healthy and of normal development. The pains developed either in one or in both of the tibias and became so severe that it was impossible to continue the military exercises. The pain is felt on the inner margin of the tibia and it is noticeable when the leg is active; that is, during walking and especially while running and jumping. During rest the painfulness disappears. Simultaneously with the development of the painfulness there also appears a swelling on the surface of the tibia. The skin covering the swollen portion is generally normal. The swelling is due to edema of the tibial periosteum. In the beginning it is so marked that, if the finger is pressed against the tibia, a pit remains. The swollen area is extremely sensitive to pressure. The edema is always limited to the surface of the tibia. The ankle joint and the foot are not swollen. The sensitiveness likewise involves only the bone, for the adjoining tendons and muscles are not painful. In the beginning, roentgenoscopy reveals normal conditions; but gradually, in the course of several weeks and months, newly formed periosteal bone appears, increases and becomes more compact. As the ossification process progresses, the edema, the hypersensitiveness and the pains disappear and there remains only a nonsensitive elevation. The cure is spontaneous, without any other treatment than rest; but, if the leg is overtaxed, relapses are liable to occur. The microscopic examination of specimens of the process, which were obtained by exploratory excision, revealed that the histologic structure was the same as that which is ordinarily found in callus formation. Although periostitis of the tibia is generally considered as of syphilitic origin, there were no signs of syphilitic infection in any of the patients in whom this peculiar callus formation was noted. In discussing the pathogenesis of the process the author expresses the opinion that it develops in a similar manner to the disorders that develop in the metatarsal bones after long and strenuous marching. The tibia is overtaxed and at the site of the severest pressure microscopic contusions develop, bone cells break down and hemorrhages set in. The periosteum reacts to these irritations in its usual manner; i. e., it commences to form new bone by way of callus formation.

Deutsches Archiv für Klinische Medizin, Berlin

171: 333-430 (Sept. 4) 1931

*Clinical Significance of Chamber Count of Eosinophils. A. v. Domarus. —p. 333.
Does Magnesium Peroxide Counteract Hyperacidity? Z. Szilárd.—p. 359.
Metabolism of Blood Pigments. L. Heilmeyer and W. Oetzel.—p. 365.
*Distribution of Protein Bodies in Blood in Hemorrhagic Diatheses. R. Jürgens.—p. 378.
*Arteritis Obliterans (Thrombo-Angiitis Buerger) as Familial Disease. K. Mészáros.—p. 391.
Studies on Metabolism in Exophthalmic Goiter. E. Mohos and A. Scholtz. —p. 397.
Studies on Metabolism in Fructosuria. H. Steinitz.—p. 401.

Significance of Chamber Count of Eosinophils.—Domarus aims to show that the diagnostic evaluation of the number of leukocytes will be of greater practical value not merely if the counting is done on stained smears but if in addition to this the chamber count is done. He first reports the results of the chamber count of the eosinophils on healthy persons and then the characteristics of the eosinophil count in various diseases such as gastric ulcer, anemia, rheumatism, tuberculous meningitis, lymphogranuloma, carcinoma, echinococcus disease, cardiac insufficiency, certain forms of nephropathies, hypertension and poisoning. The chamber count of the eosinophils is more valuable if it is repeated from time to time. In the conclusion the author points out that, although it is as yet not possible to give a satisfactory biologic explanation for the behavior of the eosinophils in the various diseases, his investigations have nevertheless proved that the determination of the absolute number of eosinophils by means of the chamber count is in many disturbances a valuable addition to the diagnostic instrumentarium. He thinks that this method should be employed at the bedside whenever possible and that it is of equal significance with Schilling's hemogram method. Moreover, in some cases it reveals characteristic changes, not detectable by other methods. It cannot be denied that this method, like all others that are based on biologic processes, has some shortcomings, but the same can be said of the hemogram method. For this reason it would be wrong to overvalue the one at the expense of the other; but it is advisable to use both of them especially since in many cases they complement each other excellently.

Distribution of Protein Bodies in Blood in Hemorrhagic Diatheses.—Jürgens employed a combination of titrimetry and of Kjeldahl's method. He determined the total protein content of the plasma, albumin, globulin, fibrinogen and volume of the plasma; also the thrombosis time, coagulation time, agglutination and retraction. The studies were made on patients with essential thrombopenia, thrombasthenia, symptomatic thrombopenia, hemorrhagic diathesis during sepsis, hemophilia, scurvy, purpura rheumatica, aplastic anemia and fibrinopenia. For comparison, cases of pernicious anemia, secondary anemia, leukemia, nephritis, nephrosis, tuberculosis, pneumonia, acute infectious diseases, thrombosis and diseases of the liver were studied. Further, hemorrhagic diatheses were produced in animals by acute and chronic benzene poisoning and by lead poisoning, and the test animals were examined in the same manner as the patients. It was found that in hemorrhagic diathesis accompanied by thrombopenia the albumin is regularly increased. A considerable increase in albumin is also noted in rabbits with acute poisoning by benzene or lead. The increase in albumin goes parallel with certain hematologic changes of the hemorrhagic diatheses; namely, with thrombopenia, reduced platelet agglutination, prolonged bleeding time in spite of normal coagulation, and prolonged "thrombosis" time in the capillary thrombometer. Hemophilia, scurvy, thrombasthenia, purpura rheumatica, and hemorrhagic diathesis in sepsis show a normal condition of the blood protein. The author also calls attention to relations between increased albumin content and "hemorrhagic tendency" in thrombopenic hemorrhagic diatheses and to relations of globulin fibrinogen increase to "thrombosis tendency" in infectious conditions and in thrombosis.

Arteritis Obliterans (Thrombo-Angiitis Buerger) as Familial Disease.—Mészáros points out that the etiology of arteritis obliterans is not entirely clear as yet. Some assume an infectious cause, others a predisposition in certain races, and still others consider it a heredodegenerative manifestation. From the latter point of view it is especially interesting if the disease occurs in several members of the same family. The author reports an instance of a family in which eight members (of two generations) showed changes indicative of arteritis. The symptoms were especially severe in three of them.

Deutsche Medizinische Wochenschrift, Leipzig

57: 1731-1768 (Oct. 9) 1931

Incipient Disease in Chronic Disorders. A. Fraenkel.—p. 1731.
Examination of Healthy Persons. A. Gottstein.—p. 1733.
Examination of Patients with Life Insurance on Basis of Experiences of German Life Insurance Companies. H. Doll.—p. 1735.
*Treatment of Retinitis Pigmentosa with Female Sex Hormone. F. Wibaut.—p. 1739.
Treatment of Rickets Without Use of Viosterol. B. Bleyer and F. Fischler.—p. 1741.
Sporadic Scurvy: Case. Arneth.—p. 1743.
*Practicability of Methylene Blue Test for Demonstration of Bilirubin. J. Seide and K. Zink.—p. 1744.
Gold Dermatitis Caused by Treatment with Gold Preparation. F. Koch. —p. 1745.
Diagnosis and Treatment of Hypernephroma. G. Bankow.—p. 1746.
Ambulatory Treatment of Surgical Disorders of Foot. O. Kleinschmidt. —p. 1747.
Suicide in Germany. H. Dornedden.—p. 1750.

Treatment of Retinitis Pigmentosa with Female Sex Hormone.—In the introduction, Wibaut points out that retinitis pigmentosa is much more frequent in men than in women. It usually sets in after puberty and progresses until, at the age of 40, the person is almost blind. Periods during which the process is nonprogressive are possible, but spontaneous recovery is unknown in this disease. The author thinks that the lesser predisposition of women may perhaps be due to hormones that are produced only in the female organism. On the basis of this hypothesis he attempted to influence retinitis pigmentosa by the administration of female sex hormones. Small doses were without effect. But when other investigators found female sex hormone helpful in thrombo-angiitis obliterans, which has certain aspects in common with retinitis pigmentosa, the author resumed the subcutaneous hormone therapy with larger doses. Of five cases treated in this manner, three showed considerable improvement, one slight improvement, and one extremely old cas not show improvement.

Methylene Blue Test for Demonstration of Bilirubin.—Following Franke's suggestion that methylene blue (methylthionine chloride, U. S. P.) is a suitable reagent for bilirubin, Seide and Zink employed in examinations of urines, besides the usual tincture of iodine test, also a methylene blue test. They wished to determine whether the positive reaction always indicates disease or involvement of the liver, and also whether the urines containing bilirubin always give the peculiar color reaction when methylene blue is added. To 5 cc. of urine, a 2:1,000 aqueous solution of methylene blue is added drop by drop. If bilirubin is present, the specimen becomes green as soon as a drop of the methylene blue solution is added. It remains green when more drops are added. But as soon as the number of drops stands in a certain ratio to the quantity of bilirubin contained in the urine, the color becomes bluish green and then dark blue. The number of drops necessary to effect a change from green to blue indicates the quantity of bilirubin. Two drops corresponds to 0.1 mg. of bilirubin. The authors designate as strongly positive urine specimens for which more than 10 drops is required to effect the change, weakly positive when from 2 to 10 drops is sufficient to produce the change in color; and if the typical blue color appears when the first drop is added, the reaction is negative. Strongly positive reactions were noted in diseases of the liver with icterus (catarrhal icterus, carcinoma or syphilis of the liver, and cirrhosis), and in stasis of the liver as the result of circulatory insufficiency. A weak positive reaction was obtained in pernicious anemia, lead poisoning, malaria, nephrolithiasis, cholecystitis, cholelithiasis, influenza and slight stasis of the liver. It was observed that the methylene blue test was much more sensitive than the tincture of iodine test, and a positive iodine test in case of a negative methylene blue test was never observed.

Wiener klinische Wochenschrift, Vienna

44: 1209-1236 (Sept. 25) 1931

Resonance Principle of Nervous Activity. P. Weiss.—p. 1211.
*Treatment of Tuberculous Diabetic Patients. H. Kutschera-Aichbergen.—p. 1217.
Results of Somatic Treatment of Dementia Praecox. B. Aschner.—p. 1220.
Indirect Arsphenamine Action. R. Brandt.—p. 1225.
Rectoromanoscopy in Diagnosis of Tumors. G. Singer.—p. 1226.
Bronchial Carcinoma. R. Lenk.—p. 1228.
Symptomatology and Therapy of Acute and Chronic Prostatitis. H. Rubritius.—p. 1228.
Relations Between Diseases of Nose and of Lacrimal Passages. K. Kofler.—p. 1229.

Treatment of Tuberculous Diabetic Patients.—Proceeding from the assumption that the low resistance of diabetic persons to tuberculous infections is perhaps due to a reduction of the sugar consumption of the tissues, Kutschera-Aichbergen attempted in three cases of diabetes and of severe exudative tuberculosis to increase the sugar consumption. When large quantities of carbohydrates and the corresponding amounts of insulin were given, the tuberculosis lost its former malignancy and took an unusually mild course. These favorable experiences in patients in whom progressive tuberculosis concurs with severe diabetes favor a continuation of the therapeutic experiment with a diet that is rich in carbohydrates. Besides the dietetic treatment, collapse therapy should of course not be neglected; on the contrary, in diabetic patients it should be instituted earlier than is usually the case, because in these patients tuberculosis is usually more progressive than in other persons. The author also points out that in diabetic patients the tuberculosis is almost symptomless in the beginning and causes no other clinical disturbances than a reduction of the carbohydrate tolerance. But in spite of this deficiency of symptoms it is usually malignant, and when finally clinical symptoms such as fever become noticeable, the tuberculous process has already reached an advanced stage. The prognosis of the combined tuberculosis and diabetes can be improved if the tuberculous process as well as the metabolic disorder is early recognized and adequately treated from its incipience. Besides the improvement in the tuberculous process the author also noted an increased sugar tolerance. In spite of a greater carbohydrate intake the insulin requirements are now less than they were before, during the time when the patients' carbohydrate intake had been curtailed.

Wiener Medizinische Wochenschrift, Vienna

81: 1389-1420 (Oct. 24) 1931

Allergic Diseases of Nose with Especial Consideration of Hay Fever. G. Hofer.—p. 1391.
Tumors of Testis. R. Paschkis.—p. 1393.
*Syphilis of Urinary Bladder. I. Jovanovitch.—p. 1398.
Clinical Aspects and Pathology of Primary and Secondary Atherosclerosis Pulmonalis with Consideration of Aneurysm of Pulmonary Artery. A. Posselt.—p. 1403.

Syphilis of Urinary Bladder.—According to Jovanovitch, syphilis of the bladder is not as rare as is commonly assumed. It is much more frequent than tuberculosis of the bladder, but it never develops during the primary stage of syphilis, appearing only after the syphilis has become constitutional, and it disappears again, together with the other manifestations of syphilis. First the blood vessels become involved and, since the vascularization of the bladder is most pronounced in the region of the trigon and of the fundus, it is here that vesical syphilis becomes first noticeable. Then the submucosa becomes affected, and only in the more advanced stage does the mucosa become involved. During this stage the vesical syphilis presents the aspects of an ulcerous cystitis with pyuria and hematuria. The fact that the submucosa becomes involved before the mucosa not only aids in differentiating syphilitic cystitis from an ordinary cystitis but also explains why in its beginning stages syphilis of the bladder is painless and does not have any distinctive symptoms, while the normal capacity of the bladder is not reduced. The diagnosis of vesical syphilis is often difficult. It can be based on cystoscopy and on the efficacy of antisyphilitic therapy. If the serologic tests for syphilis are positive, a lesion of the bladder may be considered syphilitic; yet a negative serologic reaction does not necessarily speak against the syphilitic character and other vesical disorders must be excluded before a definite diagnosis is made. In regard to the treatment, the author states that syphilis of the bladder yields only to antisyphilitic therapy. Antiseptic irrigations, electrotherapy and internal treatments are, especially during the beginning stage before the mucosa becomes involved, more harmful than curative, since they irritate the mucosa.

Zeitschrift für Krebsforschung, Berlin

34: 313-418 (Sept. 11) 1931

*Analysis of Tumor Resistance: 1. Studies on Fermentation. N. Waterman.—p. 313.
Id.: 2. Relations Between Lipase Activation, Cytolytic Reaction and Autolysis. N. Waterman.—p. 327.
*Id.: 3. Increased Resistance by Use of Spleen Extracts. N. Waterman.—p. 333.
Experimental Production of Sarcoma in Rats. C. M. Bellows.—p. 348.
Sarcoma in Rats Following Action of External Factors. M. Askanazy.—p. 362.
Remarks on Increased Frequency of Cancer of Lungs. M. Lipschitz.—p. 376.
Diffuse Carcinomatous Lymphangitis of Peritoneum. B. P. Abramsohn.—p. 382.
Cancer Mortality of Pregnant Women and of Puerperas. S. Peller.—p. 394.
Symptomatology of Lymphangitis Carcinomatosa of Lungs and of Pleura. L. N. Goldmann.—p. 405.

Analysis of Tumor Resistance: Studies on Fermentation.—Waterman points out that investigations on the problems of fermentation are of greatest significance for cancer research, for the cancer cell is generally considered the product of fermentative degeneration. Glycolytic degeneration as well as proteolytic degeneration has already been investigated, and the author studies lipatic or fat-splitting processes of the cancer cell. He discusses the significance of the lipatic systems for cell action and cell form and states that the lipatic process represents the coordinated action of ferment and of activator. In the blood as well as in the tissues such an activator is present, and this activator is sensitive to oxidation and to reduction. The lipatic action is accelerated by oxidation and weakened by reduction. Accordingly it may be assumed that in the intracellular mechanism there is a connection between oxidation and lipatic processes. Activator substances can be extracted by various procedures from organs such as the spleen and the lymph nodes. The extract can be purified by segregating the lipatic activator from the substance sensitive to rays. The latter substance can be removed by adsorption.

Tumor Resistance: Experimental Investigations on Increased Resistance by the Use of Spleen Extracts.—In summarizing the results of these researches, Waterman states that resistance to tumors, although often doubted, really does exist and that it may be induced by the injection of certain substances. The resistance produced in this manner can be demonstrated on implanted tumors as well as on tar cancers. The substances that produce resistance are contained in extracts from the spleen and from the lymph nodes. The author admits that this method is still in its infancy and that the extracts still have to be improved, particularly as far as purity and concentration are concerned. Nevertheless, he considers his method of preparing them as a distinct progress. He then stresses once more the significance of his investigations on lipase, which were reported in the two preceding articles.

Vrachebnoe Delo, Kharkov

14: 641-752 (July 31) 1931

*Nature and Treatment of Edema. E. A. Lovtskiy.—p. 647.
Pulmonary Diseases Simulating Tuberculosis. A. E. Rabukhina and R. Ya. Shlifer.—p. 656.
Etiotropic Treatment of Ulcer of Stomach and Duodenum. I. S. Rodova.—p. 659.
Clinical Aspect of Blood Transfusion: Statistics in U. S. S. R. V. N. Shamova.—p. 663.
Perforation in Gastric Ulcer. I. O. Shcherbina.—p. 669.
*Sympathicotonic Symptom of Upper Lip: A Factor in Increased Tonus of Sympatheticus of Neck. L. A. Shillnikova.—p. 671.
Seven Hundred Instances of Treatment of Chronic Diseases of Uterus: Method of Grammatikati. M. Romodanova.—p. 674.
Ferment Power of Blood in Congenital Syphilis of Nurslings. G. I. Landa and D. G. Tullbermana.—p. 679.

Nature and Treatment of Edema.—Lovtskiy discusses the various theories of nephritis and edema, and attacks the problem as a phase of colloid-chemical phenomena. In his early studies he found that when ammonium chloride was administered orally to help the sleep of persons with edema a diuresis resulted. Using fixed doses of ammonium chloride, he determined the free carbon dioxide and bicarbonate of the blood (van Slyke's method) and obtained the value for the alkali reserve. His observations were as follows: Ammonium chloride causes a fall in the alkali reserve of the blood, the acid-base balance shifting toward the acid side. The shift toward acidosis brings about swelling in the tissue colloids resulting in diuresis. Acidosis causes a dissociation of the bicarbonate buffer of the blood; at the same time there follows in the liver a synthesis of the ammonia group into urea with increased excretion of urea into the blood and urine. The sodium chloride content of the urine also increases absolutely and proportionately. Considered as colloid phenomena, the passage of the sodium ion is necessary; its hydropigenous rôle is due to the increase in oncotic or osmotic pressure of the proteins. The author believes that there is no edema without retention of the sodium ion and no dehydration without its elimination. Calcium chloride as well as ammonium chloride was administered in combination with merbaphen and resulted in some instances in greater diuresis. The author stresses the importance of the recognition of cardiac edema with noncardiac manifestations. He also stresses the importance of the consideration of metabolic factors in the study of decompensation of the heart.

Sympathicotonic Symptom of Upper Lip.—Shillnikova asserts that the sympathicotonic symptom of the upper lip (similar to Chvostek's sign) as well as the sympathicotonic anisocoria symptom are indicators of changes in tonicity of the cervical sympathetic nervous system. The integrity of the facial nerve is necessary for the symptoms to appear. In case of paralysis or paresis of the cervical system, the symptom of the upper lip does not appear. Anisocoria as a symptom appears more often than the upper lip symptom, and the latter more often than the symptom with asymmetrical sympathetic widening of the palpebral fissures. The symptom of the upper lip (found most often in tuberculosis of the lungs) is present in from 18 to 25 per cent, and the symptom of the asymmetrical palpebral fissure in from 10 to 13 per cent of tuberculous patients. The symptom of the upper lip is almost an exclusive factor in localized disorders of the cervical sympathetic nervous system but can also appear in generalized sympathicotonia. The author advises further research.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 5075-5190 (Oct. 10) 1931

Acute Stasis in Blood Vessels of Arm (Thrombosis par Effort). J. G. Remijnse.—p. 5078.
Chemotherapy in Cancer of Uterus. R. Korteweg.—p. 5084.
*Menstrual Disturbances as Affected by Hormones. H. van der Hoeven.—p. 5087.
Carriers of Diphtheria Bacilli. K. S. Nanninga.—p. 5104.
Mineral Metabolism in Animal Organism: II. Copper. E. Sluiter.—p. 5106.

Menstrual Disturbances as Affected by Hormones.—Van der Hoeven aims to throw light on the physiology and pathology of the menstrual cycle. He is aware that his theories are based on many hypotheses not fully established, but the success of his treatment has induced him to publish this preliminary report of his experiences. In his treatment of the various disorders of menstruation, he proceeds on the supposition that the wrong functioning of one or more endocrine glands is the cause. When a woman suffers from scantiness of the menstrual discharge, it may be due to underfunctioning of the thyroid. Overfunctioning of the suprarenals may likewise play a part. The hypophysis, owing to impairment, may produce too little prolan B, and, finally, the ovaries may be impaired. In some cases the disorder may be traceable to an abnormal functioning of all these four glands. In choosing the form of treatment, one will often find it difficult to decide what particular gland is involved in a given case. The author follows this method: If the menses are too profuse and the thyroid is enlarged, he prescribes epinephrine. Nearly always this medication is more or less successful. If, however, the loss of blood following the administration of epinephrine is increased, the blood flow without doubt is not menstrual but due to follicular bleeding. In that case, thyroid must be given. If, on the other hand, the thyroid is enlarged, there is strong likelihood of a disorder of the hypophysis and possibly also of the ovaries, and the treatment must be changed in that direction. If the blood flow is scanty (when the thyroid is not palpable) thyroid tablets should be prescribed. If, however, the thyroid is normal or too large, epinephrine must be administered; for the scanty blood flow is due to the fact that a partially mature ovum has been discharged, with the result that the quantity of lutein formed is too small and the blood flow too scanty. A discharge that contains many blood clots may be an indication of a follicular bleeding, but it may also be due to the fact that, owing to the scanty lutein formation, too little of the coagulation-preventing ferment is formed, especially since, during the menstruation, there is a reduced sympathicotonia. Thus, in this last case, thyroid tablets must first be given, in order to stimulate the formation of prolan B, and later, during menstruation, epinephrine in order to enhance the sympathicotonia. When the patient reports, after a few months, on the effects of the tentative treatment, the author is able to form a much more exact opinion as to the cause of the disorder. He then establishes a new diagnosis. In this manner, with the cooperation of the patient, good results can usually be secured.

Hospitalstidende, Copenhagen

74: 911-938 (Sept. 10) 1931

*Pernicious-Like Anemia of Pregnancy. Conc'n. V. Aalkjœr.—p. 918.
Pirquet Tests in Ejde Medical District in Faroe Islands. R. K. Rasmussen.—p. 926.

Pernicious-Like Anemia of Pregnancy.—Aalkjœr cites from the literature thirty certain cases of pernicious-like anemia of pregnancy. He reports a personal case, in which liver treatment together with blood transfusion was followed by an immediate rise in blood values with the pregnancy uninterrupted, and compares the reticulocyte reaction in this case with the one that occurs in the treatment of true pernicious anemia. The few cases with liver treatment during pregnancy which have been reported to date are discussed.

74: 939-950 (Sept. 17) 1931

*New Strain of Chicken Leukosis. J. Engelbreth-Holm.—p. 941.

New Strain of Chicken Leukosis.—Engelbreth-Holm reports on the first ten "generations" of a strain of transmissible chicken leukosis distinguished from other strains by a short incubation period (down to one week) after the first few passages, by being effective after the seventh generation in 100 per cent of the cases, and by consisting exclusively of erythroleukosis cases except for the first generation, with long incubation period, which consists of two mixed myeloid-erythroleukotic cases. Subcutaneous as well as intramuscular inoculation is effective. He is inclined to agree with Furth that the so-called lymphatic leukosis in chickens is not connected with chicken leukosis. The two other forms, erythroleukosis and myeloid leukosis, may be regarded as early and as late manifestations, respectively, of the same pathologic process.

Hygiea, Stockholm

93: 689-736 (Sept. 30) 1931

Intracapsular Cataract Extraction. F. Kugelberg.—p. 689.
*Parathyroids and Calcium Metabolism in Organism. E. Ask-Upmark.—p. 704.

Parathyroids and Calcium Metabolism in Organism.—Ask-Upmark states that, in sixty-three out of ninety-two cases of parathyroid enlargement from the literature or from personal observation, there were diseases of the bones, forty-eight of the cases being instances of osteitis fibrosa generalisata. The parathyroid enlargement, practically always present in this disease, is probably to be regarded as a toxic adenoma primary to the disturbance in the bones and in the mineral metabolism. In the differential diagnosis of osteitis fibrosa generalisata, exploratory operation on the parathyroids should be done if necessary; and palpation of the neck, and particularly determination of the blood calcium are advised in all cases of more generalized involvement of the bones. Removal of the parathyroid adenoma (Mandl) has been done, with improvement in sixteen cases.

Norsk Magasin for Lægevidenskapen, Oslo

92: 677-788 (July) 1931

*Mineral Metabolism in Pregnancy. K. U. and G. Toverud.—p. 677.
*Exposure to Tuberculosis and Tuberculosis Infection in Childhood. H. J. Ustvedt.—p. 696.
*"New" Muscular Tumor: Case of "Myoblast Myoma." O. Berner.—p. 706.
*Case of Keratoconjunctivitis from Acne Rosacea. A. Mohn.—p. 709.
*Two Cases of Purulent Infection with Bacillus Influenzae Pfeiffer. E. Waaler.—p. 715.
*Case of Peculiar Perforation of Esophagus. P. Treider.—p. 721.
Crossed Plate Suture in Median Laparotomies. S. Høyer.—p. 724.
Crossed Plate Suture in Fracture of Patella and Similar Fractures. S. Høyer.—p. 728.

Mineral Metabolism in Pregnancy.—The Toveruds state that the negative calcium and phosphorus balance established by them three years ago in a number of primiparas in the last half of pregnancy seems to occur frequently but disappears after regulation of diet according to the recognized principles for a normal calcium and phosphorus metabolism. The negative calcium and phosphorus balance is experimentally proved to play a decisive part in the bone composition in the new-born, whether the diet deficiency is in vitamins, in the mineral salts calcium and phosphorus, or in both. To what extent pronounced rickets or osteoporosis with slight rachitic symptoms will be more marked in the child will then depend on the nature of the postnatal diet with regard to the important factors for calcification, unless the postnatal diet is so ideally balanced as to repair the inborn deficiency.

Exposure to Tuberculosis and Tuberculosis Infection in Childhood.—Ustvedt concludes from his investigation in Trondheim that even in the first years of school life the infection of Pirquet-positive children in cities occurs mainly outside of house and home. In Oslo as in Trondheim only about one fourth of the children between the ages of 7 and 15 are infected, although it is most likely that all children, at least after the age of 7, have been exposed to infection. This may point to unknown factors active in the threatened organism and temporarily able to prevent infection.

"New" Muscular Tumor: Case of "Myoblast Myoma."—Berner believes that he has lately seen, in a small specimen from the tongue of a young man, an instance of the tumor type described by Abrikossoff. The tumor has an organoid appearance, the connective tissue regularly inclosing the elements, so that pictures are seen which are strongly reminiscent of an alveolar sarcoma. Possibly because of this organoid characteristic, the tumor has no especial tendency to recur, in spite of the apparently marked "immaturity" of the cells. As far as the author knows, metastases have not been described.

Case of Keratoconjunctivitis from Acne Rosacea.—Mohn's patient had had acne rosacea for fifteen years and frequently recurring irritation of the eyes for nine or ten years, with intense rubor in the conjunctiva, without severe pain. A violent rosacea keratoconjunctivitis then set in, with ulcerations advancing to the center. Nonspecific protein therapy was instituted with sterile milk given intramuscularly, 1 cc. the first day, 3 cc. the next, increasing to 5 cc. every other day for a week, then every third or fourth day; in all, seven injections in two weeks. Local treatment of the eyes with resorcinol solution was given, together with treatment of the seborrhea and acne rosacea. Recovery followed.

Purulent Infection with Bacillus Influenzae Pfeiffer.—Waaler's first case was in an infant, aged 20 months, with cold and fever followed by painful swelling of the knee joint and symptoms of meningitis; death occurred after one month. A pure culture of Bacillus Pfeiffer was found in pus from the knee joint and also in the blood. In the second instance, in a man with chronic disease of the maxillary, sphenoid and ethmoid sinuses of fifteen years' duration, B. Pfeiffer in a practically pure state was isolated from the nasopharyngeal discharge. Both strains showed a typical growth of B. influenzae. The first strain gave complement fixation in the serum down to a dose of 0.0125 cc.; the other, down to a dose of 0.05 cc.

Perforation of Esophagus.—Necropsy in Treider's case revealed a slit, 7 cm. long, in the mucous membrane of the esophagus, presumably due to the sharp edge of a prune pit which had lodged in the patient's esophageal stricture and been forced through the membrane by the pressure of the rather stiff sound used by the patient.

Ugeskrift for Læger, Copenhagen

93: 887-914 (Sept. 4) 1931

*Death Following Ambulant Lumbar Puncture. H. Boas.—p. 887.
International Society Against Tuberculosis. K. Faber.—p. 887.

Death Following Lumbar Puncture.—Boas states that death in his case was due to sepsis resulting from a phlegmon caused by the lumbar puncture. The need for careful antisepsis in ambulant lumbar puncture is emphasized.

93: 915-936 (Sept. 10) 1931

Dangers in Deep-Sea Diving. E. W. Johannsen.—p. 915.
Clinical Aspect of Obesity. A. Faber.—p. 918.
*Nupercaine Anesthesia Based on First Fifty Cases. E. Thomsen.—p. 922.
*Case of Death During Nupercaine Anesthesia. P. Kühnel.—p. 924.
*Case of Acute Nupercaine Intoxication. S. With.—p. 925.
*Some Cases of Silicosis Among Women Employed in Manufacture of Abrasive Powder. S. V. Gudjonsson.—p. 926.

Nupercaine Anesthesia Based on First Fifty Cases.—Thomsen used a 1:1,000 solution of nupercaine as a local anesthetic in various major and minor operations. Epinephrine was not added. He considers nupercaine an excellent local anesthetic in most cases. An instance of grave intoxication following the application of nupercaine points to the need of considerable care in its use.

Death During Nupercaine Anesthesia.—In Kühnel's patient, a girl aged 16, with Little's disease, spasms set in shortly after the injection of a dose of nupercaine well under the maximum according to the literature, and death occurred one hour after the start of injection. The case is regarded as a warning to use general anesthesia as far as possible in operations on patients with Little's disease.

Acute Nupercaine Intoxication.—In With's patient with exophthalmic goiter, the subcutaneous injection of 35 mg. of nupercaine in Heidenhain's anesthesia was followed by violent intoxication. Intradural injection was excluded, and the result is ascribed to the intravenous injection of 10 mg. of nupercaine at the most. Care is urged in deep injections in regions where there are chances of a partial intravenous injection.

Silicosis Among Women Employed in Manufacture of Abrasive Powder.—Gudjonsson reports six fatal cases of silicosis among women working for years, under primitive conditions, in the manufacture of scouring powder. Of the two survivors, one has marked silicosis; in the other, employed for five or six years, silicosis is not yet clinically demonstrable.

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CHOLECYSTITIS AND CYSTIC DUCT OBSTRUCTION

SIGNIFICANCE IN THE FORMATION OF GALLSTONES RICH IN CALCIUM CARBONATE AND IN CALCIFICATION OF THE GALLBLADDER WALL: PRELIMINARY REPORT *

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Large gallstones in man consisting of a high percentage of calcium carbonate have been but rarely reported and no associated factors have been mentioned as specifically influencing their formation. In a study of seven cases diagnosed as such, the observation was made that in every case the cystic duct was obstructed by a cholesterol-bile pigment, or cholesterol stone, indicating that the duct obstruction was a precursor to and a determining factor in calcium carbonate stone formation in the gallbladder.

Following this obstruction the calcium carbonate was thrown out in large quantities, forming either a separate stone or a mold of the gallbladder which incorporated preexisting cholesterol-bile-pigment stones. A thick mucinous suspension of calcium carbonate may be found which has been described as "calcium milk bile" by Volkmann.[1] In some instances the deposit of calcium carbonate produced the roentgenographic appearance of very markedly concentrated tetiothalein sodium N. N. R. in a gallbladder that was either free from stones or contained radiotranslucent stones. In other cases there was in addition a deposit of calcium carbonate on the gallbladder side of the stone obstructing the cystic duct, thereby making it possible to diagnose the presence of duct obstruction as well by means of the roentgenogram. Four cases have been encountered among 235 cases of gallstones at the University of Chicago Clinics during the past three years and eight months. Three cases are from the outside. The first two cases are reported in full as illustrative of the condition, and the other five are summarized:

Case 1.—A woman, aged 44, had had repeated attacks of pain in the epigastrium and (curiously) left upper quadrant, extending to the left scapular region for the past fifteen years. Following an attack, cholecystography was performed, March 28, 1928. The roentgenogram taken before the dye was given showed a quarter moon shaped dense shadow in the gallbladder region (fig. 1). There was no change in density in the gallbladder region in the pictures taken after the dye was administered. A second roentgenogram taken seventeen days later showed a shadow of the same size which had taken on a serpentine configuration. In June, 1928, an abdominal hysterectomy was performed for fibroids, at which time palpation revealed a stone in the cystic duct. Following a moderately severe attack of colic another roentgenogram was taken, May 31, 1930. It revealed marked enlargement of the dense shadow in the region of the gallbladder, which had taken on an oval form, and there was a faint half moon shaped shadow in the region of the cystic duct (fig. 2). The patient continued to have slight attacks of colic at irregular intervals. Feb. 28, 1931, a roentgenogram showed slight enlargement of the shadow and a change in contour to that of a half moon. Three days later the shadow had the contour of an agar slant (fig. 3). The shadow in the region of the cystic duct had increased in density. Another roentgenogram, April 27, showed a return of the shadow to approximately the configuration of May 31, 1930.

At operation, April 29, 1931, the gallbladder was found to be moderately contracted and its wall thickened. A stone was found in the gallbladder and one in the cystic duct. Cholecystectomy was performed including the cystic duct containing the stone. A roentgenogram of the specimen (fig. 4) shows a large dense oval shadow in the fundus of the gallbladder, numerous flecks throughout its remaining portion, and an irregular half moon shaped shadow cast by the gallbladder side of the stone in the duct. An attempt at aspiration yielded a small amount of very thick mucus. A longitudinal section of the specimen (fig. 5) showed a cholesterol stone about 0.75 cm. in diameter in the first portion of the duct, with a white deposit on its side projecting into the gallbladder. There was a soft pliable white oval stone in the fundus weighing 4.580 Gm. The rest of the gallbladder was filled by a clear, very thick mucinous material which was dotted irregularly with white flakes. Chemical analysis showed 600 mg. of calcium per hundred cubic centimeters. The wall of the gallbladder was moderately thickened. Aerobic and anaerobic cultures of the mucin and of the wall were negative.

Microscopic sections of the wall revealed moderate fibrous thickening with scattered areas of round cell infiltration. The mucosa was intact in most of its extent but had disappeared over many of the villi, which showed an increase in the number of fibroblasts and round cell infiltration. Some of the villi showed glands markedly distended with mucus.

Chemical analysis of the white stone gave calcium carbonate, 85 per cent, and calcium phosphate, 2.5 per cent. The rest consisted of organic matter. There was no bile pigment or cholesterol.

The second case illustrates the type of calcium carbonate stone which was deposited about other stones forming a cast of the greater extent of the lumen of the gallbladder and giving the roentgenologic picture resembling concentrated tetiothalein sodium:

Case 2.—A woman, aged 55, had attacks of gallstone colic at irregular intervals for several years. There had never been jaundice but some of the attacks had been accompanied by fever. Physical examination was of no especial interest aside from

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Volkmann, J.: Ueber kalkmilchartige Galle, München. med. Wchnschr. 73: 2014 (Nov. 26) 1926.

tenderness in the right upper quadrant. A roentgenogram (fig. 6) revealed a dense shadow conforming roughly to the outline of the gallbladder but incorporating irregular areas of greatly reduced density suggestive of bile pigment-cholesterol stones. Roentgenograms taken after administration of tetiothalein sodium showed no change in the shadow. At operation March 15, 1927, a thickened gallbladder was found contracted on stones with a stone obstructing the orifice of the cystic duct. Cholecystectomy was performed. On longitudinal section of the gallbladder its wall was found to be slightly thickened. There was a small amount of turbid fluid in the gallbladder that was not bile stained. The rest of the space was occupied by calculi. There was a soft oval white calculus 6 cm. long occupying the central portion. A small white calculus occupied the tip of the fundus and a brown calculus was wedged in the orifice of the cystic duct with a white cap on its gallbladder side. Three small brown pigment stones lay free alongside the large stone. The large soft white stone was found to contain several mottled grayish brown bile pigment-cholesterol stones on the inside.

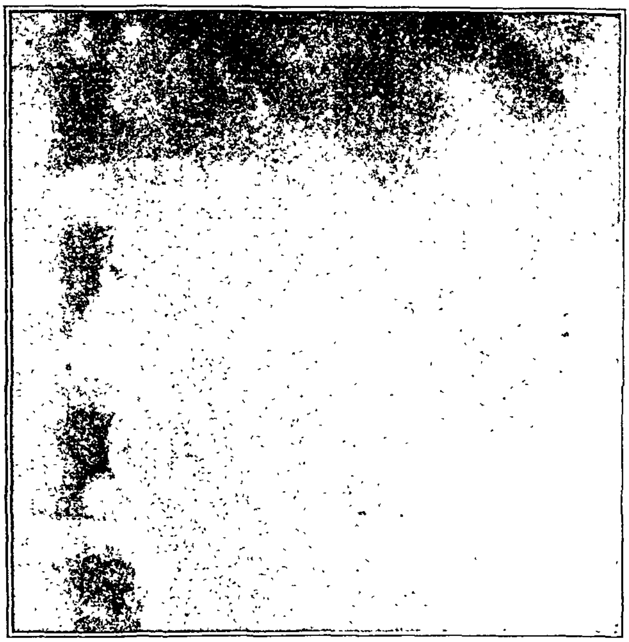
Fig. 1 (case 1).—Shadow in gallbladder region, April 23, 1928.

Cultures of the fluid in the gallbladder were negative. Microscopic examination of the wall showed moderate thickening with loss of mucous membrane and villi over about nine tenths of the surface lining. At irregular intervals there were small stretches of mucosa and of glands embedded in the deeper tissue. There was moderate fibrosis and round cell infiltration of the wall. Chemical analysis of a portion of the white material comprising the largest stone gave the following results: calcium carbonate, 75 per cent; calcium phosphate, 2 per cent; cholesterol, trace; bile pigment, 0; organic matter the remaining portion.

A summary of the observations in the remaining five cases follows:

Case 3.—A man, aged 65, had had mild attacks of gallstone colic at intervals for seven years. A roentgenogram showed a dense shadow in the gallbladder region of the shape and size of the gallbladder. Cholecystectomy was performed by Dr. E. M. Miller at the Presbyterian Hospital. There was a stone impacted in the cystic duct and a large one in the gallbladder. The gallbladder wall was moderately thickened. The lumen contained a small amount of yellowish green fluid and a grayish oval stone measuring 6.5 by 2.5 cm. with a brown pigment stone incorporated and showing at one end. The stone weighed 18.258 Gm. Chemical analysis of the gray stone revealed calcium carbonate, 80 per cent, calcium phosphate, 0.46 per cent; bilirubin present, and cholesterol absent. Because of the bile stained character of the fluid and interior of the stone there must have been some bile entering the gallbladder past the stone in the cystic duct.

Case 4.—A man, aged 32, had mild attacks of pain in the right upper quadrant at intervals for one year. He was never jaundiced or febrile. A roentgenogram showed a large dense cup-shaped shadow in the region of the fundus of the gallbladder with a smaller ring shaped shadow proximal to it. There was no change in the gallbladder shadow after injection of tetiothalein sodium.

At operation, stones were found in the contracted gallbladder and one in the cystic duct. Cholecystectomy was performed. There was 8 cc. of turbid mucous fluid very slightly bile stained. Chemical analysis of the fluid showed the following: p_H, 7.195; carbon dioxide, 5.55 volumes per cent; calcium, 163 mg. per hundred cubic centimeters; phosphorus, a trace. The gallbladder contained an oval white stone 2.5 by 1.25 cm. with two small bile pigment stones embedded on one side. Chemical analysis of the white material revealed: calcium carbonate, 74 per cent; calcium phosphate, 3.1 per cent; bile pigment and cholesterol, present in traces. There was a smaller cholesterol stone present which showed a calcareous deposit on one side. Cultures from the gallbladder wall yielded anhemolytic streptococci.

Case 5.—A woman, aged 26, had attacks of pain in the right upper quadrant at intervals for two years. A roentgenogram showed a large, somewhat irregular, dense shadow in the gallbladder region. No change occurred in the gallbladder shadow after administration of tetiothalein sodium. Cholecystectomy was performed. There was a stone impacted in the cystic duct near the common duct. The slightly contracted and thickened gallbladder, on being opened, was found to contain a milky white semisolid mass embedded in which were six small white stones. Cultures were negative. A chemical analysis of the white deposit showed it to be composed largely of calcium, but no attempt was made to determine the amounts of carbonate or phosphate present. The white stones were calcium carbonate.

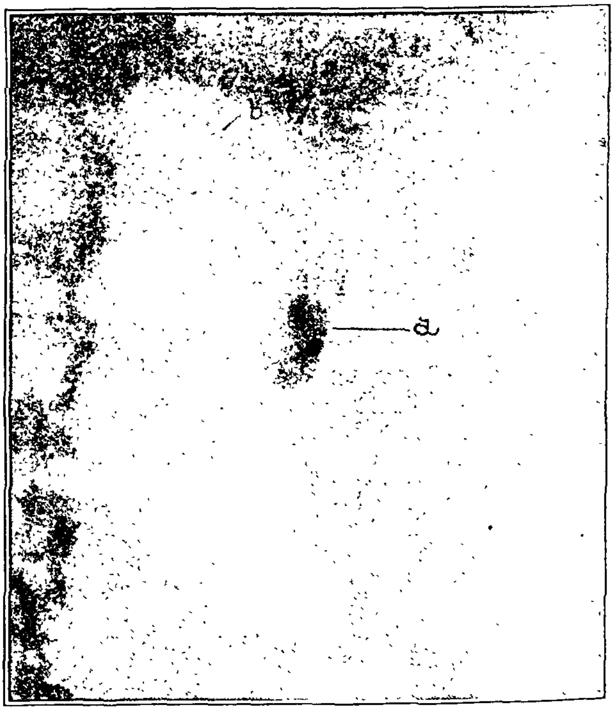

Fig. 2 (case 1).—Shadow in regions of (*a*) gallbladder and (*b*) cystic duct, May 31, 1930.

Case 6.—A woman, aged 31, had had attacks of pain in the right upper quadrant for five months. She had no jaundice or fever. Examination showed slight tenderness in the gallbladder region. Cholecystography was done and the roentgenogram taken before tetiothalein sodium was given revealed a dense shadow of the outline of the gallbladder and containing numerous negative shadows indicative of small radiotranslucent stones. There was a ring-shaped shadow in the region of the cystic duct. No change took place in the shadow twelve hours after the tetiothalein sodium was given.

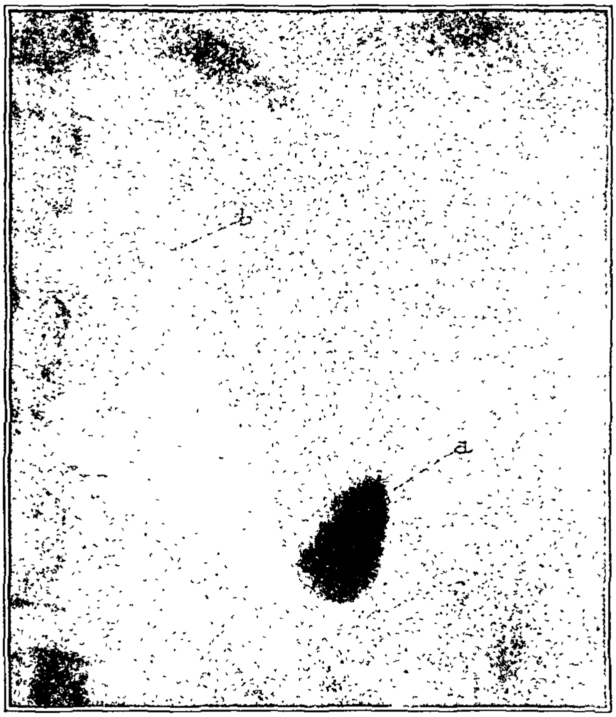

Fig. 3 (case 1).—*a*, gallbladder shadow and *b*, cystic duct shadow, March 2, 1931.

Case 7.—A woman, aged 37, had had attacks of gallstone colic for seven years. She had no jaundice and had never been severely ill. Physical examination showed no changes of especial interest. Cholecystography was done. The roentgenogram before dye administration revealed a large dense sausage-shaped shadow in the region of the gallbladder and a ring-shaped shadow in the region of the cystic duct. There was no change in the size and density of the shadow in roentgenograms taken after dye administration, but there was a change to a dumb-bell shaped form. A roentgenogram twenty-four hours later showed further change in form.

Patients 6 and 7 were not operated on, but in view of the similarity of roentgenographic observations in them and the other patients a diagnosis in each case of cholelithiasis with cystic duct obstruction and subsequent deposition of calcium carbonate in the gallbladder and on the cystic duct stone was made.

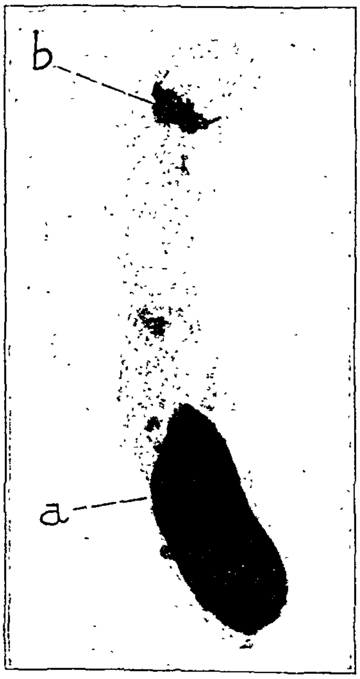

Fig. 4 (case 1). — Roentgenographic appearance of specimen showing (*a*) large dense stone in gallbladder and (*b*) dense shadow on gallbladder side of cholesterol stone in cystic duct.

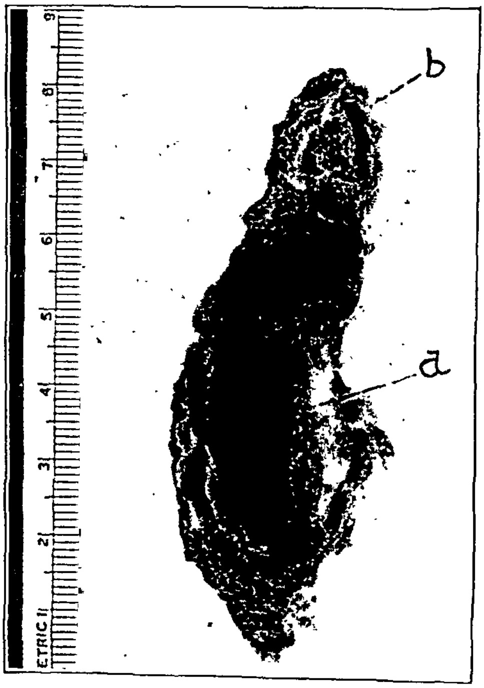

Fig. 5 (case 1).—Gallbladder and cystic duct incised showing (*a*) white stone in gallbladder and (*b*) gray cholesterol stone in duct with white deposit on its gallbladder side. Thick mucus containing white flecks filled the rest of the gallbladder.

COMMENT

It appears that the order of development of changes was as follows: First there was cholecystitis and cholesterol or cholesterol-pigment stone formation. The controversy as to the relationship between these two processes and as to which one precedes the other need not be discussed here. The cholecystitis was mild to moderate in grade, the mucosa showing the most marked changes, and the stones were multiple in at least five of the seven cases. A stone then passed into the cystic duct, lodging at various levels from the orifice to the common duct end. The obstruction was of high grade and in some cases the passage of bile into and of secretion out of the gallbladder appeared to have been completely blocked. Thus, in six cases tetiothalein sodium was administered and in no instance was there a shadow indicative of dye in the gallbladder region. The cholecystitis resulted in moderate thickening of the gallbladder wall and in serous exudation, but in no case was the gallbladder larger than normal and in most cases it was contracted. A moderate to a large amount of mucus was poured out. Calcium carbonate and a trace of calcium phosphate were then excreted by the wall of the gallbladder, forming a semisolid to soft white stone, incorporating other stones when they were present.

Hastings and Zachariasen of the University of Chicago demonstrated by x-ray spectrograms that the calcium carbonate present in three cases was in the crystal form of aragonite. The indications are that these calcium carbonate stones are formed only when bile is excluded from the gallbladder by the obstructing stone or when the amount entering it is greatly reduced. There is probably variation in the degree of obstruction in some cases with the variations in the amount of infection in the gallbladder and duct. The only direct references found to the subject were by Kaufmann,[2] who in discussing the pathologic condition of the gallbladder in cystic duct obstruction says that in some cases the gallbladder wall is degenerated and its cavity filled with a mortar-like mass of calcified thick secretion, and by Volkmann, who found the duct obstructed in one case.

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[2] Kaufmann, E.: Lehrbuch der pathologischen Anatomie, Berlin, W. de Gruyter & Co., 1922.

No explanation has been found for the selective excretion of calcium carbonate over long periods of time in such cases, giving rise to these large white masses. It may be that it occurs only when the inflammatory process and the obstruction are of certain degrees of severity and chronicity. Certain it is that in most cases of cholelithiasis with cystic duct obstruction and hydrops, calcium carbonate stones are not formed. In the cases here reported the inflammation appeared to be mild and chronic and there was no history pointing to the previous existence of a severe acute cholecystitis. Wilkie[3] reported that, when he produced cholecystitis in rabbits by bacterial injection and ligated the cystic duct, gallstones rich in calcium were formed but that, when the duct was not ligated, stones composed of cholesterol formed. Naunyn[4] asserted that the calcium carbonate of all gallstones is poured out in connection with the mucin formed by the epithelium of the gallbladder. This is supported by the fact that the only other calculi consisting of as high a percentage of calcium carbonate are found occasionally in the salivary ducts[5] and in the pancreas,[6] where there is also mucous secretion.

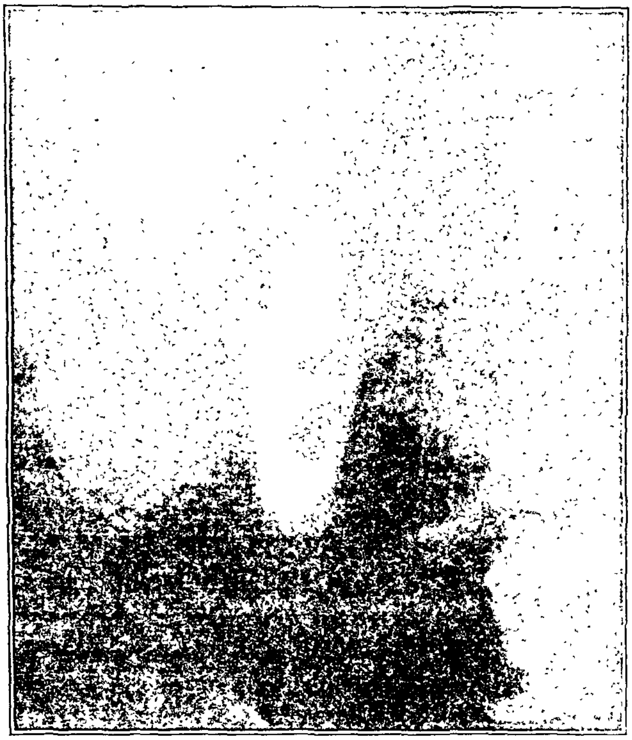

Fig. 6 (case 2).—Appearance before administration of tetiothalein sodium. The dense shadow is due to calcium carbonate, and the negative shadows are due to incorporated cholesterol and bile pigment stones.

The question arises as to whether or not the calcium carbonate deposited in layers on cholesterol or mixed cholesterol-bile pigment stones is excreted by the gallbladder during periods of temporary obstruction of its outlet.

CALCIFICATION OF THE GALLBLADDER

In cases of chronic calculus obstruction of the cystic duct with extensive degeneration and fibrosis there may be calcification of the gallbladder wall and of the wall of the cystic duct about the impacted stone. In three autopsy specimens that have been studied the cystic duct was completely blocked and the epithelial lining and glands of the gallbladder were entirely destroyed. The wall of the gallbladder was converted into fibrous tissue and the calcareous deposits were irregularly distributed throughout it. The wall of the cystic duct and the surface of the stone were fused by a calcareous deposit where they were in contact. In the gallbladder shown in figure 7 a chemical analysis of the calcareous deposit showed that it consisted almost entirely of calcium phosphate, which amount is unusually high for calcified tissue, although this process has the appearance of ordinary calcification of degenerating tissue. In a fourth case of calcification of the wall of the gallbladder the cystic duct was not obstructed by a stone but the gallbladder lumen was filled by a large stone and the cystic duct was obliterated by fibrous tissue at its orifice so that no bile entered the gallbladder. A review of articles on calcification of the gallbladder by Robb,[7] Talbot,[8] and Fowler[9] brings out the fact that the cystic duct was obstructed either by stone or by scar tissue growing over its orifice in nearly all the reported cases, although no special attention was called to the relationship between the obstruction and the calcification. In none of our cases was there found a combination of a calcium carbonate stone in the lumen of the gallbladder and calcification of the gallbladder wall, but Robb has reported a case which from the illustration appeared to be such. Robb believes that in some cases hypercontraction is produced by the stones, leading to fibrosis and calcification of the walls.

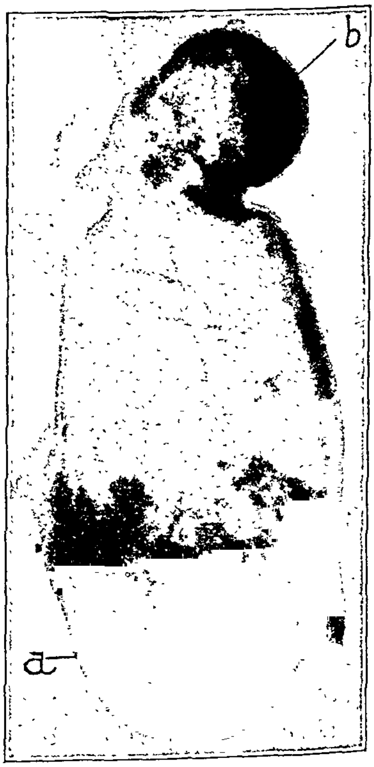

Fig. 7.—Roentgenographic appearance of specimen; cholesterol-pigment stone obstructing cystic duct with calcification of (*a*) wall of gallbladder and (*b*) wall of cystic duct and surface of stone.

CONCLUSIONS

1. Large calcium carbonate stones may form in the gallbladder in cases of cholelithiasis and cholecystitis with chronic obstruction of the cystic duct by a stone, and it appears that duct obstruction is essential for their formation. The calcium is apparently excreted by the mucosa of the gallbladder.

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[3] Wilkie, A. L.: The Bacteriology of Cholecystitis: A Clinical and Experimental Study, Brit. J. Surg. **15**: 450 (Jan.) 1928.

[4] Naunyn, B.: Die Gallensteine, Jena, 1921.

[5] Besanez, G.: Lehrbuch der physiologischen Chemie, 1874; quoted in Roberg: Sialolithiasis, Ann. Surg. **39**: 669, 1904.

[6] Rosenthal, M.: Ein Beitrag zur Kenntnis der Lithiasis pancreatica, Arch. f. Verdauungskr. **20**: 619, 1914.

[7] Robb, J. J.: Observations on Calcification of the Gall Bladder with the Presentation of a Case, Brit. J. Surg. **16**: 114 (July) 1928.

[8] Talbot, P.: Cholelithiasis: Notes on a Case with a Calcified Gall Bladder, Brit. J. Surg. **8**: 533 (April) 1921.

[9] Fowler, W. F.: Calcareous Changes of the Gall Bladder Wall, Ann. Surg. **78**: 623 (Nov.) 1923.

2. Calcium may also be deposited on the stone in the duct, so that the diagnosis of its presence as well as that of the calcium carbonate stones in the gallbladder may be made from roentgenograms.

3. Calculous obstruction of the cystic duct followed by extensive degeneration and fibrosis of the gallbladder may result in marked calcification both of its wall and of that of the cystic duct at the point of impaction.

"LIVER DEATHS" IN SURGERY OF THE GALLBLADDER *

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From time to time there have appeared in the medical press a number of papers analyzing the causes of death following operations on the gallbladder and ducts. In a recent contribution by E. M. Stanton, 500 fatal cases were analyzed in a combined series of approximately 10,000 gallbladder operations. Even on casual reading one is impressed with the number of ascribed causes of death in this series wherein over thirty-eight individual causes were designated as the lethal factor. The causes of death given in the order of their frequency were peritonitis, pneumonia, embolism, cardiac failure, spontaneous perforation, sepsis and renal failure. It is rather surprising that so-called shock and hemorrhage constituted 10 per cent of the fatal cases.

In analyzing our mortalities at the New York Post-Graduate Hospital we were impressed with a small group of fatal cases in which the cause of death could in no way be placed under such obvious types of mortality. There was about this group of cases an unexplained chemical mechanism as the outstanding feature in the production of death, and which was directly sequential to operative intervention.

We were able to distinguish with variations three distinctive types of death following gallbladder surgery and for want of a better term we have designated them as "liver deaths" and apparently due to a change in the physiologic status of the liver-gallbladder unit.

Type 1 is best depicted by a history of a typical case. A woman, aged 37, entered the Post-Graduate Hospital complaining of gas after eating and occasional pain in the right upper quadrant. There had been one attack of pain requiring a hypodermic of morphine. On examination the blood count was normal, the Wassermann test was negative and a phenolsulphonphthalein test for kidney function was normal. The patient was operated on at 9 o'clock in the morning. A simple cholecystectomy was performed, the common duct was not involved, and nothing noteworthy was found in the pancreas or in the remainder of the abdomen. The liver, however, showed a slight enlargement. The edges were crenated, the consistency was leathery. From the area of the gallbladder region was a white, rosetlike tissue, extending well over the dome and inferior surfaces of the right lobe of the liver. The patient had a simple ether anesthesia. The immediate postoperative reaction was normal. However, the patient did not completely come out from the anesthetic and was not awake by 3 o'clock in the afternoon. At the end of twelve hours the patient was decidedly lethargic or semicomatose and there was a gradual ascent in temperature, successively through 102, 103, 104, 105 and 106 F. The pulse rate and respiration paralleled the temperature rise. The chemical examination of the blood showed a normal icteric index and a gradual ascending scale of urea nitrogen. Clinical examination of the lungs gave no evidence of pneumonia. The patient died at the end of thirty-six hours.

We know that there is a close association in temperature regulation between the heat center of the brain and the heat production in the liver, as one third of the heat production of the body is due to liver activity. According to Crile, when the temperature of the liver is reduced 1 degree the chemical activity of the organ is reduced 10 per cent and it is possible when the abdomen is opened for the temperature of the liver to fall from 1.5 to 3 degrees even if the viscus is not directly exposed. Furthermore, when as the result of hepatic exhaustion incident to disease or surgical intervention, the chemical activity of the liver is reduced to 10 per cent of its normal capacity, death will occur. The anatomic result of cholecystectomy is the removal from the liver of an infected gallbladder, leaving a gallbladder fossa of varying degree of surface area capable of protein transudation and absorption together with a sudden change in the hydrostatics of bile flow.

Deaver, Pfeiffer, Sudler and Braithwaite have contributed noteworthy papers on the lymphatic and vascular association of liver, gallbladder and pancreas, and to a lesser extent of the viscera of the lower abdomen. It is not without significance that there is no anatomic block in the lymphatics between liver and gallbladder, the lymphatic channels passing uninterruptedly from gallbladder to liver and from liver to gallbladder. It is also noteworthy that lymphatic drainage from the area of the cystic duct and Calot's triangle is along the common duct to the under surface of the pancreas. The clinical association of pancreatitis and gallbladder disease is not without its effect on the reparative power of the patient. In addition to the functions usually ascribed to the liver, there is the ability of the bile acids to combine with the alkaline metals. The gastric chyme which leaves the stomach has an acidity of p_H 3 and is neutralized by an alkaline bile to give a duodenal mixture of a p_H of approximately 11. In alkalosis there are some changes in these differentials, but up to date we have found no constant factor of variation.

Clinical and laboratory studies indicate that both acidosis and alkalinity are associated with marked liver impairment and ketogenesis, and later with secondary kidney failure. In the type of mortality listed under type 1 there was no evidence in the preoperative study to indicate any renal impairment, either actually or potentially. In the past five years we have had fourteen gallbladder cases with a carbon dioxide combining power of over 80 volume per cent and of this group six patients died, with a clinical picture of stupor, hyperpyrexia and rapid death. In the fatal cases no alkali had been administered preoperatively and all exhibited a condition of pronounced alkalosis, as shown in the accompanying chart.

Type 2, a form of liver death much more infrequent than type 1, has occurred in patients who have had a previous cholecystectomy and rarely a drainage of the common duct. The patient is jaundiced, and the secondary operation consists of a choledochotomy, with T tube drainage. For the first few days after operation the postoperative course is normal and satisfactory.

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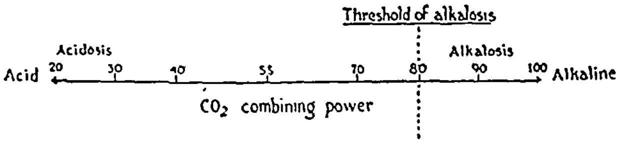
* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

Then there is a distinct change in the character of the drainage. The biliary discharge becomes less and less in amount and more watery in consistency. In spite of the constantly diminishing jaundice, as shown by the decreasing icteric index, the patient becomes delirious; there is marked cerebral excitation, subsultus tendinum and carphology occur and finally stupor and coma. There is no clinical evidence of intra-abdominal hemorrhage or infection, yet in spite of a diminishing jaundice, coma develops, which in all of its clinical manifestations is similar to that which occurs in a terminal cholemia. By reason of the marked cerebrospinal irritation, spinal puncture has been made and practically normal fluid obtained with a slight globulin reaction and cell count of 9 or 10 cells per cubic millimeter. What has been the effect of the more or less sudden removal of the common duct obstruction? Have we induced a secondary acute reactive hyperemia in an already compromised liver? Do the liver cells function for a short time postoperatively and then fail?

Type 3 occurs much less frequently than either type 1 or type 2 and apparently is more amenable to treatment. These patients have diseases of the common duct and pancreatitis, do not have jaundice, and for the first twenty-four to thirty-six hours after a choledochotomy with T tube drainage have an apparently normal postoperative course. Then the pulse rate becomes markedly accelerated. The patient becomes markedly prostrated, with a fall in blood pressure and a cessation of urinary secretion, and exhibits cold, clammy, moist extremities. The abdomen is without any clinical evidence of infection, hemorrhage or any unusual postoperative abdominal condition. A negative gastric lavage demonstrates an empty stomach and no gastric dilatation. One is impressed that while the clinical condition herein presented is very similar to shock it occurs from twenty-four to thirty-six hours after the operation and seems to be a complete vasomotor collapse from an overwhelming intoxication, probably of pancreatic origin. Transfusion and repeated infusions of physiologic solution of sodium chloride with 10 per cent dextrose are usually sufficient to save the patient.



An increase in the carbon dioxide combining power toward 80 indicates an alkalosis; the reverse, an acidosis.

From a practical point of view, the acid-base balance of blood plasma should be accurately determined preoperatively in all cases of gallbladder disease.

In the postoperative treatment of gallbladder cases, chief consideration should be given to the following:

1. A continuous and persistent effort should be made to combat the dehydration. This is best accomplished by using known quantities of fluid, through all channels —water with 10 per cent dextrose in the form of the rectal drip, physiologic solution of sodium chloride with 5 per cent dextrose by hypodermoclysis and physiologic solution of sodium chloride with 5 or 10 per cent dextrose solution intravenously. If the carbon dioxide combining power tends to the left, indicating a condition of acidosis, the dextrose is particularly beneficial because in the oxidation of dextrose there is a destruction of the ketogenic bodies. If the carbon dioxide combining power moves to the right, indicating an alkalosis, the administration of dextrose is primarily to prevent dehydration and in an important but secondary rôle to prevent protein destruction.
2. When vomiting is a conspicuous feature, with or without tetany, gastric rest should be maintained by an indwelling intranasal (Levine) tube.
3. If symptoms of tetany appear, 5 cc. of a 10 per cent solution of calcium chloride is given intravenously and repeated in eight hours if necessary.
4. Sodium bicarbonate should not be used in any form. As sodium bicarbonate is frequently employed for gastric lavage, it is particularly important to bear this point in mind.
5. It is essential to make repeated chemical determinations of the blood to control or indicate further therapy.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. PHEMISTER, REWBRIDGE AND RUDISILL, AND DR. HEYD

Dr. Damon B. Pfeiffer, Philadelphia: Dr. Phemister's contribution is another example of the fact that the cholecystogram is not an infallible indicator of the presence or absence of a surgical lesion of the gallbladder. This is not said in detraction of this valuable test, but the knowledge that false positives and negatives exist should sharpen the attention of the radiographer and the clinician. Dr. Heyd has drawn attention to a group of fatalities not readily explainable under the common causes of death. In some it seems probable that the outcome is due to some derangement, not thoroughly understood, of certain essential hepatic functions. It is well to appreciate the dangers that lurk in operations on individuals with a damaged liver. I should deprecate, however, the too facile adoption of such terms as "liver death" or "liver shock" to cover such deaths as appear mysterious and unexplainable. I suspect that some are not due to disordered hepatic chemistry but to fulminating infection of a sort not readily demonstrable. It is realized, as Dr. Heyd has said, that some of these deaths are due to disturbance of the acid-alkali balance of the blood, a condition that is usually preventable, and often remediable if recognized promptly and treated appropriately. I urge the more general adoption of his advice to employ the laboratory aids in detecting and in treating intelligently such chemical abnormalities. Alkalosis is especially liable to occur in connection with upper abdominal surgery. In all cases of so-called gastric dilatation or prolonged vomiting this condition occurs to a greater or less degree. The stomach tube, abundant fluids, sodium chloride, and dextrose are the specifics. In this type of surgery I am constantly exhorting interns to keep the stomach empty and the circulation full. There are exceptions to all rules. I have a patient, operated on for a gallbladder condition, a large man, who reacted badly to anesthesia and vomited profusely for three days. He had a high fever and low urinary excretion. Clinically I should have thought that he would exhibit alkalosis. To the contrary, the laboratory showed that he had an acidosis, which was explainable by the fact that he had renal insufficiency. The retention of abnormal acids more than counterbalanced the loss of acid in the stomach contents, to which the alkalosis is usually due. The warning against the use of sodium bicarbonate as a routine measure for gastric lavage or rectal instillation is important. I am glad the routine sodium bicarbonate rectal instillation has gone into the discard. Acetone in the urine does not mean acidosis. It may be present in alkalosis, in which case alkali treatment would greatly increase the danger. To a certain extent it is no longer necessary to postulate unknown chemical disturbances to explain clinical disorders. A more general use of recent contributions to blood chemistry is of great importance to the surgeon.

Dr. I. S. Ravdin, Philadelphia: Dr. Phemister and his associates have presented an extremely interesting pathologic picture of the calcium carbonate stone. One might speculate as to why hydrops did not occur more frequently in these cases. In my studies on calcium absorption from the gallbladder I have found that in the damaged gallbladder the bicarbonate concentration increases above blood level and at this time calcium is precipitated from the solution. The precipitation first occurs under the mucosa of the gallbladder, and as this increases the mucosa disappears and a calcium carbonate plaque occurs on the surface of the mucosa with mucosal degeneration. Undoubtedly certain of the deaths reported by Dr. Heyd are due to ligation of the hepatic artery which may be in an anomalous position. If this ligation is done accidentally at operation, death will occur in from twenty-four to forty-eight hours from hypoglycemia and an increase in nitrogen content in the blood, regardless of the type of therapy that is instituted. I have felt that anesthesia is an important factor in these cases. For some time I have preferred spinal anesthesia. Ether can at times, especially if previous liver injury exists, cause marked liver necrosis with an associated hyperpyrexia and nitrogen retention. The existence of alkalosis in the cases described by Dr. Heyd may have been due to persistent vomiting, as Dr. Pfeiffer said. I have felt that slow decompression of an overdistended bile duct is an important factor in these cases. It is well known that portal obstruction occurs with bile duct obstruction, and in perfusion experiments of the hepatic artery and portal vein, obstruction of the bile duct results in a steady retardation of blood flow into the liver. A sudden release of this pressure in the bile ducts causes an acute reactive hyperemia of the liver, and there is no doubt that in certain of these cases, death similar to the death that occurs after an acute decompression of an overdistended bladder may occur. I have been using a simple method based on the work of Gamble for correcting dehydration in my cases. I feel that it is more important to correct dehydration than to correct blood reaction. If the dehydration is associated with salt loss, physiologic solution of sodium chloride is used; if it is associated with fluid restriction, tap water is given by rectum. If ketosis exists, dextrose is given either with or without physiologic solution of sodium chloride intravenously.

Dr. P. B. Salatich, New Orleans: I was greatly interested to hear Dr. Heyd talk about some of these deaths that he couldn't account for. I am going to try to explain some of those unaccountable deaths. I shall take it for granted that the patient has been thoroughly studied before operation and that the proper technic is carried out in operating. I mean by proper technic that the cystic duct is carefully dissected and not mass forceps put on, catching lymph nodes (for very often there is a chain of lymph nodes right at the cystic duct) and that the gallbladder is removed, as is usually done, and so on. First is the interference with the liver function. That is a big subject with which all of us are concerned. For years I have been using epinephrine, with excellent results, and I know that epinephrine helps liver function. If I have a bad case I give epinephrine frequently in repeated doses, and if one gives solution of epinephrine to a normal patient, he gets a pretty good reaction from ten drops. In a patient whose liver function is interfered with, if one gives 10 minims of solution of epinephrine one can repeat that every three hours and that patient has very little reaction. After twelve, twenty-four hours, or more, the liver function, I believe, is restored, my patient begins to get quite a reaction from the epinephrine. Then I either stop or diminish the dose, depending on how bad the case is. I think it is wrong to wait until one can see the bulging of the stomach before introducing a tube. Very often one will find that twelve hours afterward the patient will have a good deal of ugly material in the stomach, and the stomach does not appear distended. Some of the patients that die in an unexplainable manner run along for twelve or twenty-four hours doing well, and then suddenly they become distended; they get depressed and have cold, clammy sweats and kidney interference and very often there is a history of alcoholism. There are three important danger signs: high temperature, acetone in the urine, and dilatation of the stomach. The patient may have either one of them alone and recover, but when he has all three together, generally the mortality is high.

Dr. Moses Behrend, Philadelphia: I believe that we have all encountered these sudden deaths after cholecystectomy, and, as Dr. Heyd has stated, the causes vary. They have been called liver deaths, but there are many causes about which nothing is known. Certainly chemistry plays an important part in the causes of death of these individuals. I have operated on patients, performed a cholecystectomy, and within twenty-four hours the temperature would rise to 106 and even 108 F., and the patient would die within twenty-four hours. These deaths are unexplainable. I believe there will be less of these liver deaths on account of the use of spinal anesthesia. I believe that in former years, prior to the universal use of spinal anesthesia, many deaths were due to rough handling of the site of operation. Spinal anesthesia has eliminated that altogether. One can make a dissection, such as has been spoken of here, in a very anatomic manner. There is another cause of death, and that is operating on acutely inflamed gallbladders. One should never operate on an empyema of the gallbladder in the acute stage. The great danger in waiting is supposed to be rupture of the gallbladder. I have seen only one rupture of the gallbladder in thirty years. I am sure that this need not be considered as an argument to operate on an empyema of the gallbladder immediately; an empyema of the gallbladder should be operated on a week or ten days after the inception of the attack. Ligation of the hepatic artery has been mentioned. I have done a lot of experimental work on the ligation of hepatic arteries, and I am sure it is one of the causes of death in these cases. Last year, I operated on a physician of this state and found a thrombosis of the hepatic artery. One half of the liver was pale and anemic; the other half was of normal color. In addition, he had an empyema of the gallbladder, which contained many stones; the gallbladder was removed. At the time of operation I told his accompanying physician that this case was a very serious one on account of the anemia of half of the liver. This is the first time I have seen a case of this sort.

Dr. Charles Gordon Heyd, New York: I think the discussion has brought out that all have had the experience of standing at the bed of a patient on whom one has operated that morning. One asks oneself: "What is the mechanism that is killing that patient?" A few hours later the patient is dead. The death certificate is made out: terminal pneumonia, heart failure, or uremia, three insecure diagnoses—terminal events. Some chemical change has taken place; whether it has been the unfortunate misadventure of the time of operation or something else, the result has been sequential to the operative intervention.

Dr. Dallas B. Phemister, Chicago: In reply to Dr. Ravdin as to the source of the calcium in these two types of lesions, there can be no question about its coming from the blood stream in the case of calcification of the wall of the gallbladder. No bile is entering the gallbladder, and calcium phosphate and calcium carbonate are deposited in its degenerating wall as in the calcification of other tissues. There is more question about the origin of the calcium carbonate which forms the gallstones. However, I believe that it is secreted by the mucosa of the gallbladder in the presence of obstruction of the duct. One of the stones weighed 18.5 Gm. and it is difficult to conceive of that amount of calcium carbonate coming from bile working by a large stone obstructing the cystic duct.

Etiology of Endometriosis.—In 1908 Cullen examined a number of specimens of diffuse endometrioma of the uterus, or diffuse adenomyoma as it was then called, and found as a result of his investigations that in places there was direct continuity between the endometrium proper and that contained within the tumor, and frequently an actual communication between the uterine cavity and several of the cystic spaces in the growth. This became known as the diverticular theory, and may be regarded as the simplest form of endometriosis. In certain other uterine endometriomata no such continuity can be demonstrated, and in these it must be assumed that the misplaced endometrium has reached its new situation by metastasis through the lymph vessels or venous channels of the uterine wall. Similar tumors not infrequently follow tuberculosis of the uterus or tubes, so it is possible that an inflammatory process may be a factor of some importance.—Dougal, D. D.: Remarks on Endometriosis and Endometriomata, *Brit. M. J.*, Nov. 21, 1931, page 929.

NEUROLOGIC SYNDROMES ASSOCIATED WITH HYPOGLYCEMIA *

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ST. LOUIS

Hypoglycemia as the cause of a variety of neurologic pictures has been most forcefully brought to attention during the past year by the coincidence of several similar cases which appeared in Barnes Hospital. One of these, which was referred to us with a previous diagnosis of epilepsy, was found to show a classic picture of hypoglycemia caused by an adenoma of the pancreas.[1] It was possible to demonstrate and remove the adenoma, with the disappearance of hypoglycemia and the clinical cure of the patient. A patient of Womack, Gnagi and Graham,[2] in whom an adenoma of the pancreas was demonstrated, had had periods of confusion and convulsive movements for over a year, had been placed on phenobarbital and considered as a brain tumor suspect. Another case,[3] diagnosed as syphilis of the nervous system, terminated fatally in convulsions. At autopsy a small adenoma of the pancreas was found.

ETIOLOGY AND INCIDENCE OF HYPOGLYCEMIA

Evidence accumulated during the past few years has demonstrated that hypoglycemia is by no means a rare condition. In its study, various workers have rather arbitrarily placed the fasting blood sugar level at figures ranging from 70 to 90 mg. per hundred cubic centimeters of blood, the most generally accepted level being 70 mg. or lower.

Since the discovery of insulin, values for blood sugar below normal levels have been described in a number of pathologic conditions. Seale Harris,[4] in 1924, first hypothecated a "hyperinsulinism" which should produce a definite picture of hypoglycemia and its concomitant symptoms. At that time he reported three cases with fasting blood sugar levels from 47 to 67 mg. per hundred cubic centimeters which showed weakness, ravenous hunger and nervousness. Harris advanced the idea that hyperactivity of the islands of Langerhans causes the sensation of hunger and a greatly increased consumption of carbohydrates.

Experimentally, many drugs having a toxic action on the liver, such as chloroform, phosphorus and hydrazine, will produce a hypoglycemia apparently secondary to the decreased glycogen store in the liver. Removal of parts or all of the liver causes a marked or fatal hypoglycemia.

Porges,[5] working with cats, states that the removal of the suprarenals is followed by a hypoglycemia reaction.

Jonas,[6] in his survey of the literature, pointed out that hypoglycemia is found associated with so many conditions that it may be ascribed as a causative factor in the production of weakness and easy fatigability.

Holman[7] cites three cases, one in detail, which, twenty-four hours following subtotal thyroidectomy, showed low blood sugars with symptoms of semistupor, extreme restlessness and marked weakness. He calls attention to the fact that the immediate effect of the active thyroid substance is to produce a tremendous increase in general body metabolism, necessitating a utilization of all the available carbohydrates, including the glycogen reserve in the liver and in the muscle tissues. Eventually, if sufficient active substance has been taken up by the circulation, the consumption of all available carbohydrate takes place and hypoglycemia supervenes.

Schwarz,[8] in 1926, reported a case in which a patient in late pregnancy suffered from moderate hyperthyroidism. This patient, following a sugar tolerance test, showed a series of low blood sugars with complaints of weakness, nervousness and periods of anxiety. He suggested that these lowered blood sugars could be accounted for by a combination of two factors: the storage of carbohydrates by the fetus during late pregnancy and the depletion of glycogen stores consequent on the hyperthyroidism.

During the past few years, several authors have presented cases of hyperinsulinism due to disease of the pancreas. In 1926, Warren[9] was able to collect fifteen cases of benign tumors of the pancreas and report five of his own. In his series he studied only the pathology, with no correlation of clinical and pathologic data. Margaret Smith,[3] in searching for the cause of death in a patient who had been known to have syphilis, found an adenoma of the pancreas. Blood sugar as low as 58 mg. per hundred cubic centimeters had been recorded in this case.

Wilder and his co-workers[10] stimulated interest in hypoglycemia and hyperinsulinism by their classic study of a case of carcinoma of the pancreas. It was demonstrated that the hypoglycemia was definitely associated with an overproduction of insulin and its constant liberation into the blood stream.

Thalhimer and Murphy[11] report a case of adenoma of the pancreas, demonstrated at autopsy, which occurred in a patient who, for two and a half years, had suffered from attacks of stupor which had been complicated by epileptiform seizures during the year before death. At no time during the observation of this patient had the blood sugar been over 60 mg.

McClenahan and Norris[12] likewise reported a case of adenoma of the pancreas demonstrated at autopsy, in which hypoglycemia was present. Howland and his co-workers[13] reported the first cure by removal of a tumor of the pancreas in a patient with hypoglycemia.

Allan[14] and others have reported cases of hypoglycemia not necessarily due to focal disease of the pancreas, yet presenting as characteristic a picture. Hartmann,[15] in 1929, added a case in a man, aged 43, with blood sugars as low as 32 mg., who died with symptoms suggesting hypoglycemia.

Waters[16] reported three cases of paroxysmal tachycardia associated with hypoglycemia and repeats the belief that prolonged high carbohydrate diet stimulates

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* From the Department of Neurology of Washington University and the Barnes Hospital.

* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

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excessive insulin formation with a resulting spontaneous hypoglycemia.

Suprarenalectomy may be accompanied by hypoglycemia and, according to Britton and Silvette,[17] may be controlled by the use of extracts of suprarenal cortex, prepared according to the method of Swingle and Pfiffner. This cortico-suprarenal hormone, however, has no effect in relieving the hypoglycemia and convulsive reactions following the administration of insulin, varying in this respect from epinephrine.

SYMPTOMATOLOGY

Nervous symptoms form a predominant part of the clinical picture of hypoglycemia. They are varied and numerous, although not all of them are present in any one case. They seem to depend on the hypoglycemia itself and are not materially modified whether the lowered blood sugar is caused by administration of insulin, by liver damage or by pancreatic tumor. The intensity of symptoms, moreover, seems to bear a more or less definite relationship to the degree of hypoglycemia. Moderate lowering of blood sugar values is accompanied by ravenous hunger, sweating, restlessness, anxiety, and weakness which has been so striking as to suggest to some observers that cases of supposedly organic weakness may have a similar origin. McCrudden and Sargent[18] believe that the hypoglycemia (64 mg. per hundred cubic centimeters) in their case of progressive muscular atrophy was the cause of extreme weakness, for when they increased carbohydrates sufficiently to raise the blood sugar level they brought about an increase in strength and weight.

Nervous Symptoms in Spontaneous Hypoglycemia

Author	Cause of Hypoglycemia	Nervous Symptoms
Holman........	Thyrotoxicosis.........	Stupor, restlessness, weakness
Schwarz........	Hyperthyroidism; late pregnancy	Nervousness, anxiety, weakness
Smith...........	Adenoma of pancreas..	Stupor; convulsions
Wilder et al.....	Carcinoma of pancreas	Restlessness; anxiety; stupor; convulsions
Thalheimer and Murphy	Adenoma of pancreas..	Periods of stupor, convulsions
Howland et al..	Adenoma of pancreas..	Hemiparesis with slurring speech, stupor, convulsions
Hartmann......	Unknown...............	Weakness, diplopia, confusion, stupor, convulsions
Womack et al..	Adenoma of pancreas..	Confusion, stupor, convulsions
Carr et al.......	Adenoma of pancreas..	Diplopia; confusion, stupor, automatic behavior

With more advanced hypoglycemia, patients become more stuporous, usually completely amnesic, not infrequently comatose. There may be twitching or actual convulsions, which have been mistaken for those of idiopathic epilepsy. Deep reflexes are diminished or abolished. Hemiparesis disappearing with restoration of normal blood sugar level was reported by Howland. Death may occur during the attack, but many cases have shown a surprising and somewhat mysterious tendency toward recovery after the attack has fully developed.

The picture of hypoglycemia resulting from overdosage of insulin is too well known to require any elaboration. It is of some interest, however, to detail the nervous symptoms that have been reported in connection with spontaneous hypoglycemia from different origins. These may be seen in the accompanying table.

Several of these cases are of such interest as to merit further comment. Womack, Gnagi and Graham's patient was a man, aged 44, who had had periods of confusion for over one year, a tentative diagnosis of cerebral tumor had been made, and the patient had been placed on phenobarbital. The attacks consisted of periods of confusion, talking at random, and convulsive movements.

Hartmann's patient with a definite hypoglycemia died of status epilepticus in an epileptic colony.

In Howland's patient, following several of the attacks of stupor the left arm and left leg were paretic, and, while at first this lasted only a few hours, in later attacks it remained for several days and was associated with a thick slurring speech.

In our patient it was possible to follow the progress of symptoms on several occasions over periods of from six to eight hours. With fasting blood sugars of from 72 to 86 mg. there were no symptoms. When the blood sugar fell to between 60 and 65 mg., there was restlessness, apprehension, and sweating with lethargy. Below the 60 mg. level the patient was unresponsive but moved with stimulation. With the level between 36 and 48 mg. the patient could not be aroused and had involuntary muscle movements of a convulsive character.

The outstanding feature of the history consisted of periods of sudden onset in which activity was continued, but with complete amnesia. On one occasion, about a year before he was first seen, the patient was dressing for mess, heard the bugle, but remembered nothing more until he found himself being examined by the adjutant. He had dressed clumsily, had appeared in the mess hall and had awkwardly begun to eat, when it was suspected that something was wrong. At another time, while with a friend, he had driven through a fairly busy section of a large city, had at least one minor accident, paid for the damage, and later had no recollection of the drive. During each of these episodes, behavior was entirely automatic, permitting him to dress himself and to drive an automobile. Following each of these episodes, he became stuporous and remained so for some hours. On the first occasion he remained stuporous for thirty-six hours before some compensatory and life-saving mechanism caused him to become sufficiently alert to take food, which promptly cured the attack.

COMMENT

The mechanism of the spontaneous recovery from fully developed attacks of hypoglycemia is by no means clear. Cannon, McIver and Bliss,[19] in experiments on cats, demonstrated a mechanism or series of mechanisms having the function of maintaining the physiologic percentage of blood sugar when there is danger of deficiency. They state that, if the blood sugar falls below a critical point in consequence of a deficiency, the splanchnic neurons of the sympathetic system are set in action as indicated by increased suprarenal secretion. Both the nerve impulses and the increased secretion of epinephrine have the effect of liberating sugar from the liver into the circulation, thus tending to restore the equilibrium.

In Wilder's and Howland's cases, as well as in ours, an increase in blood sugar was found following the administration of epinephrine; so at least in these cases there was an available supply of glycogen in the liver, which could be mobilized by such a mechanism. It seems possible that in our patient this mechanism might have been responsible for spontaneous recovery after fairly long periods of stupor.

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In this discussion it is not intended to imply that idiopathic epilepsy or other common neurologic conditions have reduced blood sugar or that hypoglycemia is a frequent cause of amnesia or hemiparesis. It is apparent, however, that mistakes may easily occur and that the early recognition of this condition is of the utmost importance. The symptoms which have been detailed are so distinctive that they can hardly be missed if the condition of hypoglycemia is considered at all. Most important in the diagnosis, therefore, is to have the condition in mind. To confirm or reject the suspicion of hypoglycemia, it is only necessary to determine the blood sugar level, which today is so simply performed that it should not be omitted in any doubtful case.

SUMMARY

No matter what the cause, hypoglycemia may be manifested by stupor, amnesia, muscular twitching or convulsions and a number of less striking symptoms, such as restlessness, weakness, anxiety and fatigability.

Diagnosis of various functional and organic nervous diseases may be made if the condition of hypoglycemia is not considered.

The diagnosis of hypoglycemia depends on a careful history of preceding symptoms, the recognition of coexisting diseases and, above all, the determination of the blood sugar level.

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ABSTRACT OF DISCUSSION

Dr. Eugene F. Traut, Chicago: Dresel produced hypoglycemia by stimulating the vagus and caused hyperglycemia by stimulating the splanchnics. Some hold that the hypoglycemic symptoms are due to overaction of the suprarenals, an effort of the organism to reestablish its blood sugar equilibrium. The pallor, rise in blood pressure, and dilated pupils substantiate this. The usual immediate sequence of an insulin reaction is a rise in the blood sugar. The symptoms consequent on lowering of blood sugar depend on whose blood sugar one lowers. I have intentionally produced lowering in patients in certain conditions. I have lowered the blood sugar to 46 mg. per hundred cubic centimeters without producing any symptoms at all. Children stand a low blood sugar much better than do adults. A school teacher, aged 36, had taken large doses of insulin with varying diets over a long period. She experienced frequent attacks of headache, dizziness and diplopia before her meals. She had showed slight edema of the disks. She was referred to a neurologic surgeon, and under exact control of diet and reduction of insulin the signs and symptoms disappeared. A child, aged 4 years, entered the hospital in a deep coma from acidosis. Large doses of insulin were employed. Acetone bodies disappeared from the urine. The coma continued, but her body became spastic. There was opisthotonos. She had strabismus, dilated pupils and positive Babinski signs. The diagnosis of tuberculous meningitis was considered, as the spinal fluid sugar level was normal. There was, however, no pleocytosis. Reduction of the insulin brought her out of the coma. Her right hand and arm were paretic for many weeks. Apraxia of the right hand persists. A man, aged 64, had had both legs removed at the thigh for diabetic gangrene, thus reducing the body volume considerably. On discharge from the hospital he was given a diet. He was not seen until two years later and within those two years, retaining that diet and dosage of insulin, he had changed personality. He was irritable and, at times, violent. Morphine failed to control him. Withdrawal of the insulin abolished the symptoms. He remained sugar-free. Dr. Carr's diagnosis, followed by the successful removal of the causative pancreatic neoplasm, should serve to emphasize the necessity of more frequently considering the possibilities of hypoglycemia in patients showing suggestive symptoms.

Dr. Frank N. Allan, Rochester, Minn.: The symptoms attributed to hypoglycemia do not always correspond to the level of the blood sugar. In diabetic patients treated with insulin the symptoms sometimes appear when the blood sugar is not subnormal; in fact, they may occur when the blood sugar is above normal. I have seen distinct symptoms of hypoglycemia with the blood sugar above 0.3 Gm. per hundred cubic centimeters. On the other hand, a subnormal level of the blood sugar may exist without the appearance of any symptoms. The blood sugar may be as low as 0.04 Gm. per hundred cubic centimeters without any symptoms. There is need for investigation to determine the exact cause of the symptoms which are attributed to hypoglycemia. In the diagnosis of hypoglycemia it must be remembered that, if a test of the blood sugar is made at a time when the symptoms are not present, the condition may be overlooked. At the onset of hyperinsulinism, the blood sugar may be unstable; it may be normal, or even much above normal after food is taken. Even the fasting blood sugar test made in the ordinary way may be practically normal. In some cases it may be necessary to have the patient miss his meals and undergo strenuous exercise in order to induce the appearance of the symptoms and make recognition of hypoglycemia possible. After our experience with the case studied at the Mayo Clinic four years ago, in which a tumor of the islands of the pancreas was found, it was thought that early recognition of similar cases and early operation might lead to cure of the condition. This hope was realized when Howland, Campbell, Maltby and Robinson at Toronto reported their case two years ago. Since that time three cases of hypoglycemia, including the one described by Dr. Carr, have been cured by removal of a tumor. The prospect of cure by surgical treatment is not always so satisfactory. To my knowledge, operations have now been performed on ten patients with hyperinsulinism. In five a tumor has been found; in four it has been removed successfully with cure. In five cases the pancreas has appeared normal. Resection of part of the pancreas has brought about some benefit, but there has not been complete cure.

THE RÔLE OF THE FEMALE SEX HORMONE *

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To describe the rôle of the female sex hormone ten years ago would have been a simple matter, as this hormone alone would have had to be considered, the main attention then being focused on the corpus luteum.[1] Four years ago the situation became more complicated when Philip Smith,[2] and almost simultaneously Zondek and Aschheim,[3] showed that the prepituitary was necessary to activate the ovaries. A further complication was added when Hisaw[4] discovered an aqueous corpus luteum factor which affected the pubic ligaments of the gopher, and Corner[5] concentrated "progestin," the special lipoid extract of the corpus luteum.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

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Today, therefore, when analyzing the processes of the sex physiology in the female, it is necessary for one to consider all these chemical messengers. The structures to be analyzed now include the follicle,[6] which excretes female sex hormone alone except in pregnancy, at which time prepituitary hormone also may be found in the follicular fluid, the corpus luteum, which elaborates not only female sex hormone but "progestin," the placenta from which female sex hormone,[1] prepituitary hormone,[7] and, according to Collip,[8] "emmenin," another prepituitary-like substance, have been obtained, as well as at least two fractions from the prepituitary gland.[9] With so many hormones acting either directly or indirectly on the sexual sphere, it is not surprising that a basic analysis of the many phenomena encountered proves difficult. Yet the great majority of clinicians are satisfied to arrive at diagnoses, based on single predominant symptoms such as amenorrhea, oligomenorrhea, menorrhagia or metrorrhagia, due, as I shall show, to a number of hormonal variations, without making any attempt to investigate the hormone contents of the body fluids and excretions, although methods for these hormonal determinations are now available. In other disciplines of medicine such neglect would be frowned on as, for example, the failure to determine the basal metabolic rate in thyroid disturbances, to obtain electrocardiograms in cardiac disease, or to study the blood sugar in diabetes.

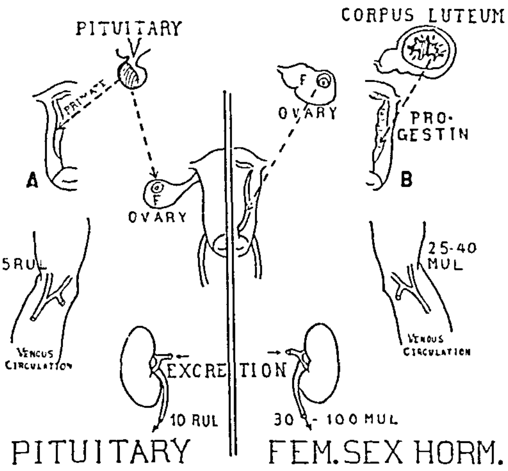

Fig. 1.—Schema of interaction, circulation and excretion of prepituitary and female sex hormones in the nonpregnant woman: To left: The prepituitary stimulates follicle (*F*) growth. In the castrate it can induce menstruation, according to Hartman (*A*). As much as 25 rat units per liter (R. U. L.) may be obtained from the venous blood; 10 rat units per liter from the urine. To right: The follicle (*F*) produces female sex hormone, which stimulates the endometrium, the rest of the tubular tract and the breasts. After ovulation the corpus luteum elaborates "progestin," causing the pregravid endometrial change (*B*). Before menstruation, from 25 to 40 mouse units per liter are recovered from the venous blood. From 30 to 100 mouse units per liter are excreted by the kidneys.

The female organism, from the neonatal age to the menopause, and perhaps beyond this critical period, is under the influence of the prepituitary hormone and the female sex hormone. After puberty, it is affected at intervals by the progestational hormone. The mechanism by which the female sex hormone influences the female tubular tract and breasts is well known.[10]

To summarize these various endocrine influences, the anterior lobe hormone stimulates the ovary to produce follicles (fig. 1). The follicle in turn elaborates the female sex hormone, which reaches the tubular tract (tubes, uterus, vagina) by means of the blood stream.[11] The tubular tract, after sufficient blood concentration has been reached, then undergoes the early premenstrual changes. Following ovulation, the corpus luteum develops. This transitory gland continues to produce female sex hormone as well as a special hormone, whose presence in the circulation has not yet been demonstrated, enhancing the local uterine and breast changes necessary for the nidation and early nutrition of the fertilized ovum. Among these changes, sensitization of the uterine mucosa, requisite for successful embedding, is particularly important.[12] If the corpus luteum is removed at this early stage, the ovum fails to secure the necessary firm hold in the endometrium and abortion results.[13] The chorion epithelium, later developing into the placenta, an important gland of internal secretion, takes up the production of both female sex hormone and prepituitary hormone. Probably as a safety factor the circulation is flooded with these two internal secretory products to such a degree that an enormous amount is excreted through the kidneys [14] and bowel [15] throughout pregnancy (fig. 2).

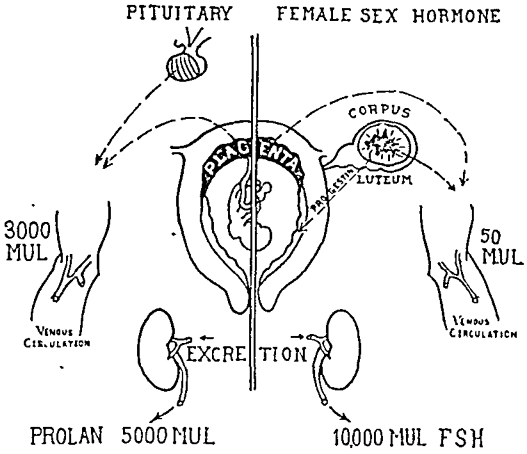

Fig. 2.—Similar schema of the pregnant female: To left: The prepituitary and placenta secrete prolan A and prolan B; 3,000 mouse units per liter can be recovered from the venous circulation, 5,000 mouse units per liter from the urine. To right: The corpus luteum and the placenta secrete female sex hormone (F. S. H.); 50 mouse units per liter can be recovered from the circulation, 10,000 mouse units per liter from the urine. "Progestin" is secreted by the corpus luteum at least during early pregnancy.

The clinical conditions to be covered in this paper have been limited arbitrarily to adolescents and mature women with functional disturbances. The discussion

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will be further limited to the group of cases in which we have studied the hormone content of the blood and excretions.

In order actually to confine the survey to these groups, it is first necessary to exclude organic causes such as tumors (especially fibroids) or infection of the genital tract. Next, we have found it essential to discover whether patients who show disturbances in their sexual sphere are free from other demonstrable endocrine disease, such as the well understood classic syndromes, for example, Froehlich's dystrophia adiposogenitalis, thyroid overactivity or underactivity (recognizable as exophthalmic or toxic goiters, and myxedema) for in these conditions the genital disturbances are usually secondary. I have purposely tried to eliminate these secondarily genital deviations, as far as possible, in order to simplify the already sufficiently complicated problems encountered.

Among the primary functional diseases of the female, hyperfunctional conditions have proved most difficult to analyze. They include bleeding, either excessive in amount or too frequent in occurrence, or a combination of the two, often accompanied by symmetrical enlargement of the uterus.

The hypofunctional conditions, on the other hand, can be classified under the general headings of amenorrhea (also oligomenorrhea) and sterility, which embrace the large majority of cases. Rarely, continuous bleeding is noted in patients whose hormonal examination has convinced us that the underlying disturbance is of hypofunctional nature. This apparently anomalous phenomenon emphasizes the fact that little or nothing is known about the actual mechanism of menstruation, which until recently has been ascribed to the abrupt withdrawal from the circulation of the female sex hormone, with consequent changes in nutrition of the stimulated endometrium, manifested by bleeding.[16] According to the most recent work of Hartman,[17] however, it would appear that menstruation can be brought on in the castrate by prepituitary hormone alone.

Whether the finding of a small number of red blood cells in the vaginal washings can be regarded as "menstruation" in the rhesus monkey (which species normally, as well as after preliminary female sex hormone injection, menstruates freely for several days) requires further confirmation.

In addition to the usual clinical examinations, which, in those cases which are worked up, include a careful history, anthropometric measurements, basal metabolism, differential blood count, and, when indicated, sugar tolerance, sellar roentgen and visual field examinations, certain hormone tests should be performed.

This does not signify that every patient with menorrhagia and metrorrhagia of short duration, or every obese patient with amenorrhea is put to the trouble and inconvenience of having to submit to all these tests. Were this the routine, both patient and physician would have just cause for complaint of the overemphasis on laboratory investigation. On the other hand, the patient who bled from her fourteenth to her twenty-eighth year, during which time she was thrice curetted, repeatedly subjected to radium application, and referred to internists, gynecologists and psychoanalysts without ever having a basal metabolism and blood hormone tests made, had just cause for complaint.

The hormone tests which I advocate in properly selected instances include the evaluation of the female sex hormone blood level throughout a cycle, or, if no periodicity exists, over a period of from five to six weeks, with simultaneous determination of the hormone excretion through the urine. For the last six months we have extended our studies to the prepituitary hormone in the blood and urine, but are not as yet prepared to consider these data conclusive.[18] The technics are now sufficiently standardized to permit the study of a considerable number of cases each month in small laboratories not possessing special equipment.

A brief summary of the technic of these tests should suffice, as detailed descriptions are accessible elsewhere.[10]

FEMALE SEX HORMONE TEST OF THE BLOOD[19]

In testing for the female sex hormone, advantage is taken of its preferential solubility in lipoid solvents. The standard amount of blood used is 40 cc., which is dried with anhydrous sodium sulphate and fully extracted with ether. The ether soluble residue is injected into castrate mice, whose vaginal spread is examined according to the method described by Allen and Doisy.[20]

In the fully normal, fertile woman, one mouse unit can be demonstrated in 40 cc. of blood from seven days before the menses to the onset of menstruation (fig. 5 *A*).

FEMALE SEX HORMONE TEST OF THE URINE

After Loewe[21] had shown that the female sex hormone appears also in the urine, our our attention was increasingly directed toward the amount excreted through the kidneys. We use a simple technic consisting of automatic continuous extraction by means of chloroform, which, if run for ten hours, completely extracts the hormone (fig. 3). By running a combined sample (500 cc.) of the total urine collected over three days, injecting the chloroform residue corresponding to 100, 75, 50 and 30 cc. of urine, the number of mouse units per liter (M. U. L.) from 10 to 30 are quickly determined. If larger amounts of hormone are demonstrated by these preliminary tests, injection of smaller doses of extract supplies the necessary data.

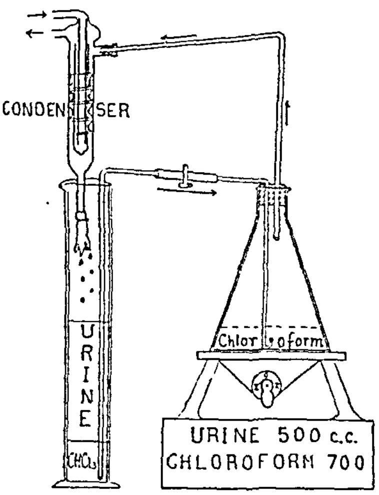

Fig. 3.—Apparatus for the automatic extraction of female sex hormone from the urine: The chloroform in a 2 liter flask on an electrical hot plate is distilled over and drips through the urine, collecting at the bottom of the cylinder. By siphonage it is returned to the flask, a 100 cc. turnover taking place every three minutes.

We have found that a normal woman excretes at least from 800 to 1,500 mouse units during an entire cycle. Two periods of maximum excretion correspond to the time of ovulation and from one to two days before menstruation (fig. 5 *A*).

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PREPITUITARY MATURITY FACTOR TEST OF THE BLOOD

Our technic for evaluating the prepituitary maturity factor in the blood is based on the extraction of the residual blood and sodium sulphate mixture previously utilized for study of the female sex hormone. This residual powder, after having been freed of its female sex hormone content, is extracted with 60 per cent alcohol, at which dilution the prepituitary hormone is fully soluble but only a minimal quantity of sodium sulphate is dissolved. The alcoholic fluid is concentrated at room temperature by an air current, and when a volume of from 6 to 8 cc. has been reached the aqueous residue is injected into immature female rats weighing from 20 to 30 Gm. One hundred hours after the first injection the animals are killed, the ovaries sectioned and the amount of ovarian stimulation (manifested by the degree of follicle ripening) determined according to the standard described by Aschheim and Zondek.[22] Follicle ripening *alone signifies anterior pituitary reaction* I (*prolan* "A" effect, A P R I); blood spots signify A P R II; atretic corpora lutea A P R III (prolan "B").[18]

In the normal woman the greatest blood concentration is noted from six to nine days following the onset of the preceding menstruation. At this time as much as 25 rat units per liter (R. U. L.) of prolan A may be found. In a few instances a trace of the luteinizing factor (prolan B) has been noted.

PREPITUITARY MATURITY FACTOR TEST OF THE URINE

The prepituitary factor present in the urine is determined by the "concentration technic" described by Zondek[23] for the pregnancy test. We have found it of advantage to use 120, 100 and 80 cc. of acidified urine. To these amounts of urine four times their volume of 95 per cent alcohol is added. The prolan A and B are precipitated at this concentration, removed from the supernatant fluid by centrifugalization and freed from female sex hormone by washing with ether. The ether insoluble residue is dissolved in water and injected into immature mice.

Our data obtained from the urines are as yet incomplete.

By the preceding methods we are able to determine the female sex hormone level in the blood as well as the amount excreted in the urine.

An encouraging beginning for similar determinations of the prepituitary factor is under way. These results will be reported in a subsequent article.

Reichert, Pencharz, Simpson, Meyer and Evans[24] since this article was completed, have raised the question whether the maturity factor obtained from the prepituitary and the similar factor found in the urine of pregnant women, both called "prolan" by Zondek, are identical. His experiments show that the urinary "prolan" is ineffective after hyophysectomy. They further suggest[25] that the urinary "*prolan*" *may be an activator* of the inactive prohormone of the hypophysis and that possibly it converts the growth hormone into the gonad stimulating one.

CLINICAL APPLICATION OF THE HORMONE TESTS

Prepituitary.—The work along these lines has not as yet been sufficiently advanced to determine an absolute norm. Consequently no attempt has been made to draw conclusions from such abnormal cases as have been investigated. However, much evidence points to the fact that many of the ovarian functional disturbances eventually may be traced definitely to functional hypophyseal derangements.[18]

Ovarian Overfunction.—Puberty Bleeding: More than a dozen of these adolescents have now been followed for from six to three years. Both the clinical and the hormonal picture in every member of this group is alike. The abnormal bleedings may be of either the menorrhagia or the metrorrhagia type and eventually lead to grave exsanguination. In contrast to the abnormal functional bleedings of mature women, the blood hormone level for female sex hormone appears constantly high, so that an overloading of the circulation is demonstrated (fig. 4 *A*). Coincidentally the bleeding mucosa shows marked cystic endometrial hyperplasia. The urine excretion of these girls also demonstrates the marked overproduction of the hormone, as an undue amount is excreted constantly, often without typical cyclic variation.

Preclimacteric Bleeding: Climacteric bleeding of purely functional character likewise shows a high hormone blood level, but usually some cyclic variation is noted. The resulting endometrial changes strikingly resemble those of the puberty group although in most instances the myometrium appears to be simultaneously stimulated to hyperplasia (which, according to Teel,[26] is a prepituitary growth hormone effect).

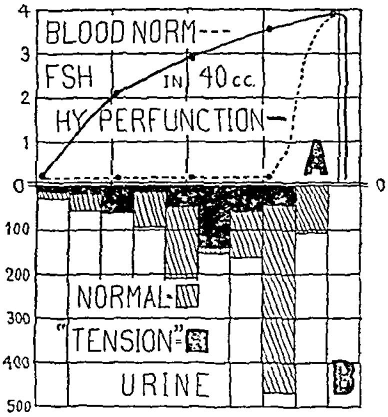

Fig. 4.—Graphs of blood and urine showing curve of female sex *hormone: The blood* represents the amount found in 40 cc.; the graph of the urine shows the total excretion in mouse unit hyperfunction. *A*, puberty and preclimacteric bleeding; dotted line shows normal function, solid line hyperfunction. *B*, urine of premenstrual tension: normal urine in shaded lines; "hypertension" due to underexcretion shown in solid black.

In another group, which I have named "premenstrual hypertension," the local genital symptoms may be absent, the entire clinical picture being dominated by the marked nervous and vascular symptoms preceding menstruation. These symptoms are explained by our hormone studies. In some instances the condition appears to be due to an overproduction of the hormone, as shown by the excessive amounts recovered premenstrually from the circulation (from two to three times normal), the excretion being normal (fig. 4 *A*). In other members of this group, I have gathered the impression that the overloading of the circulation is due to an underexcretion of the hormone, as the amount excreted during an entire cycle is less than half of that normally found in cyclic females[27] (fig. 4 *B*).

Maturity Menorrhagia and Metrorrhagia: Maturity menorrhagia and metrorrhagia has not been elucidated by our hormone studies. Occasionally a blood cycle can be demonstrated, apparently unaffected by the continuous bleeding. In the majority of cases, however, the blood tests prove negative throughout the cycle. Possibly, studies of the pituitary cycle may prove of value in determining the basis of these conditions. The endometrium may be at the normal resting stage, show typical cyclic variations, or be of the stationary hyperplastic type.[28]

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[22] Aschheim, Selmar: The Early Diagnosis of Pregnancy, Chorionepithelioma and Hydatidiform Mole by the Aschheim-Zondek Test, Am. J. Obst. & Gynec. **19**: 335 (March) 1930.

[23] Zondek, Bernhard: Zur Methodik der Schwangerschaftsreaktion aus dem Harn durch Nachweis des hypophysenvorderlappen Hormons, Klin. Wchnschr. **9**: 964 (May 24) 1930.

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[25] Evans, H. M.; Meyer, Karl; and Simpson, Miriam R.: Proc. Soc. Exper. Biol. & Med. **28**: 845 (May) 1931.

[26] Teel, H. M.: The Effect of the Growth Principle of the Hypophysis on the Female Genital Tract: With the Report of the Hypertrophic Changes in a Case of Acromegaly, Endocrinology **13**: 521 (Nov.-Dec.) 1929.

[27] Frank, R. T.: The Hormonal Causes of Premenstrual Tension, Arch. Neurol. & Psychiat., to be published.

Underfunction.—The hormone tests have proved most instructive in the study of hypofunctional conditions. The two main complexes, roughly classified according to the most striking clinical symptom, include amenorrheas and sterilities. The hormone investigations have shown that these general groupings include a variety of conditions.

Amenorrhea: Among the amenorrheas, three main types can be recognized. The first consists of amenorrheas with a definite blood cycle which, however, never reaches normal levels and which, therefore, I have called a "subthreshold cycle."

(*a*) Subthreshold blood cycle. These patients at more or less regular intervals show an accumulation of hormone in the blood, which, however, rarely reaches beyond 2 +, which, in our studies, we consider the lower limit for positive reactions. Such patients usually also show a typical urine curve with increase of excretion at the time approximately coinciding with follicle ripening or ovulation, and another period which must be compared with the premenstrual time, although bleeding does not occur (fig. 5 *B*).

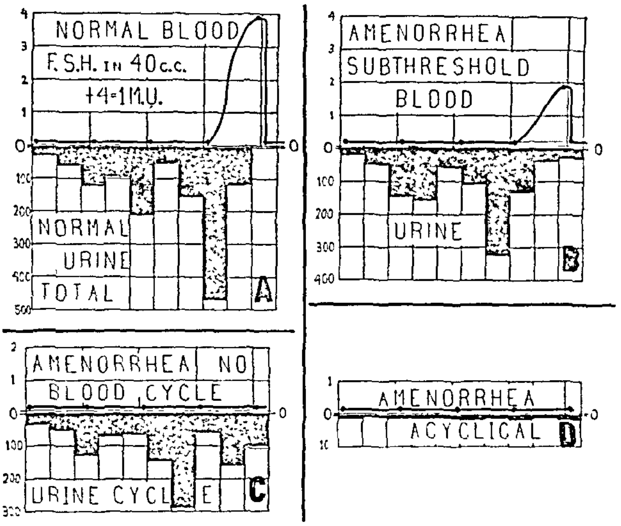

Fig. 5.—Graphs of specimens of blood and of urine showing curve of female sex hormone in the blood samples (40 cc.), as well as total mouse units excreted in the urine: *A*, normal fertile woman shown for comparison; *B*, amenorrhea (or sterility) with subthreshold blood cycle, and fairly normal urine cycle; *C*, amenorrhea without blood cycle but with urine cycle; *D*, acyclic amenorrhea.

(*b*) Negative blood cycle. In these patients frequent and long continued blood examinations fail to demonstrate accumulation of hormone with the amount of blood investigated (40 cc.). On the other hand, an excess of hormone is found in the urine over long periods of observation. We have been forced to explain this condition as due to an abnormal permeability of the kidney, in other words, a low renal hormone threshold, which contrasts sharply with some "premenstrual tensions" in which the renal threshold is abnormally high (fig. 5 *C*).

(*c*) Acyclic amenorrheas. In these, neither the blood nor the urine shows demonstrable quantities of female sex hormone (fig. 5 *D*).

Clinically these groups are indistinguishable, good subthreshold blood cycles having been demonstrated in patients with absent vaginas who have never menstruated. On the other hand, in acyclic individuals, the amenorrhea may have existed for only a short period, and yet the prognosis is poor.

Sterility: In every case of sterility spoken of in this connection, semen studies of the husband have shown potency, and mechanical (tubal stenosis) as well as inflammatory causes could be excluded. Among this group only a small number show normal hormonal conditions.

The majority of menstruating sterile women either show a subthreshold blood cycle (fig. 5 *B*), such as was described under amenorrheas, or negative blood conditions with urinary cycle present (fig. 5 *C*). Those cases in which sterility is combined with amenorrhea are explained by the hormonal changes accompanying the amenorrhea.

In the sterile types, also, the grouping and prognosis depends almost exclusively on the hormonal observations. However, as our experience has increased, stigmas noted in the individuals in whom these various hormonal changes have been studied enable us to predict with some degree of assurance what hormonal deviations may be expected. Lack of space prevents me from enlarging on this important phase of our investigations.

A generalization based on these hormone studies makes it evident that circulatory hormonal overcharge may result either from overproduction of the hormone or from hormonal underexcretion. In an analogous way, an undercharged circulation may be due to underproduction, overexcretion, or cessation of function.

Therapy.—With the preceding observations in mind, I feel justified in concluding that the present methods of therapy are not only illogical but in many instances scandalous. Some may be unaware of the widespread prevalence of dosing patients with inert commercial products. The point has been reached at which physicians, who in other disciplines of medicine are scrupulous, careful and sane, in this field prescribe ready made products solely characterized by number, containing heterogeneous mixtures of inert substances which include all but the hoof and hide of our domestic animals.

While such products as thyroid substance, insulin and parathyroid produce striking and concordant results in appropriate cases, the opposite applies even to the few potent extracts used in the genital sphere.

Our hopes have been dashed because of the fact that the potent female sex hormone does not cause the anticipated therapeutic results. This is fully explained since we recognize that this now purified substance acts solely on the tubular tract and, according to competent testimony,[29] when given in large doses over long periods, eventually causes sclerosis of the ovaries.

My investigations with all the supposedly potent anterior lobe preparations commercially obtainable have proved negative, as has also been found by Jannsen.[30] Attempts to utilize the high prepituitary hormone titer of pregnancy blood by means of transfusion appears nullified by the complete and rapid excretion noted by Erhardt.[31]

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[28] Frank, R. T.: Gynecological and Obstetrical Pathology, ed. 2, New York, D. Appleton & Co., 1931.

[29] Kunde, M. M.; D'Amour, F. E.; Gustavson, R. G., and Carlson, A. J.: Effect of Estrin Injections on Reproductive Organs, Hypophysis, Kidney, Adrenals, Thyroid and Blood Vascular System, Proc. Soc. Exper. Biol. & Med. **28:** 122 (Nov.) 1930. Hauptstein, P.: Zum Wirkungsmechanismus des Sexual (Follikel) Hormons, Endokrinologie **8:** 169, 1931. Leonard, S. L.; Meyer, R. K., and Hisaw, F. L.: The Effect of Oestrin on Development of the Ovary in Immature Female Rats, Endocrinology **13:** 16; **15:** 17 (Jan.-Feb.) 1931.

[30] Jannsen: Verhandl. d. Deutsch. Gesellsch. f. inn. Med., 42d congress, 1930, p. 82.

[31] Erhardt: Transfusion of Pregnancy Blood, Verhandl. d. Deutsch. Gesellsch. f. inn. Med. 42d congress, 1930, p. 87.

My associate, Dr. S. H. Geist, recently reported (at the last meeting of the American Gynecological Society) the negative results, as checked up by ovaries removed at operation, produced by as large a dosage as 1,500 rat units of the supposedly active prepituitary luteinizing factor.

My own efforts at therapy therefore have been directed toward influencing the underlying disturbances of the ovarian function by indirect means.

The Treatment of Overcharge (Hyperfunction): Our studies of puberty menorrhagia and metrorrhagia have convinced us that these conditions are usually self-limited or, as the older type of physician would have described it, are eventually outgrown. I therefore place these patients in the best surroundings available, at rest, with roborant diet, fresh air and sunlight. Not infrequently one or more curettages are necessary to relieve the bleeding temporarily. Transfusion may have to be practiced repeatedly. In several instances, two of my associates have resected the ovaries with good results, although at least two relapses have been noted. In two patients it has been necessary to give a reducing dose of x-rays almost to the point of amenorrhea. These two girls are now menstruating normally.

Injection of parathyroid, of insulin and of theelin, as well as large doses of calcium, have proved unavailing in our hands in this type of case.

The Bleedings of Maturity: The bleedings of maturity have likewise not responded to endocrine therapy. Here less hesitation has prevailed in employing the ordinary methods available to the gynecologist, such as curettage and roentgen therapy, as a majority of these patients have already borne numerous children.

In the preclimacterium, bleeding has been controlled by curettage, roentgen therapy or, in rare instances, the intra-uterine application of radium.

In the cases of "premenstrual tension" the overcharged circulation did not produce excessive bleeding. Renal (theobromine sodiosalicylate, caffeine) and intestinal elimination (salines) and limitations of fluids, combined with calcium therapy, has relieved a number of patients.

Undercharge (Hypofunction): A number of cases of amenorrhea have been found to be only secondarily due to ovarian disturbances. These include the symptomatic amenorrheas noted in tuberculosis, change of climate or secondary to other endocrine diseases, especially those of hypophyseal and thyroid origin. In these cases the underlying disease or condition, when amenable to treatment, has been attacked. Amenorrhea due to malnutrition, usually accompanied by moderate diminution in the basal metabolic rate and frequently mistaken as due to thyroid underfunction, responds in a gratifying fashion to a high protein diet.

I have been unable to influence the amenorrheas resulting from marked ovarian underactivity and in most instances have advised against the so-called stimulating dose of x-rays now advocated by some. The use of x-rays is never justified unless preliminary studies have demonstrated the presence of a subthreshold blood cycle, as otherwise already inert ovaries are completely destroyed from a functional standpoint. I have seen a number of cases in which irreparable damage has resulted from roentgen therapy applied for the relief of amenorrhea.

Taking for granted that the husband has been found potent and that inflammatory and mechanical causes, which so often coincide, have been fully excluded, the several varieties of sterility require different treatment. Most readily recognized among these groups are the constitutionally handicapped in which evidence of advanced infantilism, both local and general, proves that the genital organs have never been fully developed. When the thyroid function is markedly depressed, and unfortunately this group is small, thyroid medication is of sovereign value. We have reason to suspect that some of the sterilities are due to prepituitary functional disturbances, but the data at hand are as yet too scanty to be of convincing value. Great success is obtained by all, in the group of cases in which the sterility is transitory. Here wonderful and brilliant therapeutic results are recorded from every source. However, I have a large number of case histories available in which nothing whatever was done and fertility developed. In this group sex hygiene, dietary supervision (although I do not believe that the lack of vitamins plays any considerable rôle in the well fed human being), and reassurance of the patient are as effective as any therapy yet devised.

The climacteric symptoms, whether due to artificial or to the natural menopause, appear to result from a lack of female sex hormone in the circulation and an excess of prepituitary maturity factor as demonstrated by Zondek.[32] The results following the use of theelin—this appears to be its most useful field—have been too variable to be convincing. This product probably acts on the hypophysis by causing some regression of the pituitary castration changes. In my hands thorough elimination, in severe instances occasional venesection, and calcium in high dosage have proved as effective as female sex hormone therapy.

10 East Eighty-Fifth Street.

THE RÔLE OF PROGESTIN IN THE FEMALE REPRODUCTIVE CYCLE *

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The term "progestin" was applied by Allen[1] and by Corner to the hormone of the corpus luteum, which maintains in a normal state of pregnancy rabbits castrated the day after mating. In experimental work, progestin has been found to produce most of the effects already known to be associated with the functioning corpus luteum. These functions are characteristic proliferation of the endometrium for the nourishment and implantation of ova, growth of the decidua, maintenance of pregnancy and inhibition of ovulation. Excess of progestin, by raising the threshold of uterine muscle by stimulation, has been shown to inhibit the delivery mechanism, with consequent death of pregnancy in utero. In addition, we have found[2] that progestin, through stimulation of the suprarenal glands, may have other functions, both metabolic and vasomotor. In the course of this paper another activity of progestin, in relation to the excretion of the ovarian follicle hormone, will be presented. Since the anterior portion of the hypophysis contains a hormone which stimulates growth of the corpus luteum, it is assumed with much supportive evidence that the production of progestin is conditioned by the presence of this luteinizing hormone.

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[32] Zondek, Bernhard: Ueber die Hormone des Hypophysenvorderlappens: II. (Follicle Ripening Hormones—Prolan A), Klin. Wchnschr. **9**:393 (March 1) 1930.

* From the Fearing Research Laboratory, Free Hospital for Women.

* This work was facilitated by the aid of the Mrs. William Lowell Putnam Investigation of the Toxemias of Pregnancy, and the support also of Mr. Reginald W. Bird.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

* Through the hearty cooperation of Dr. John Rock, the Boston Lying-In Hospital and Dr. Frank A. Pemberton, the clinical application of the luteinizing hormone has been thus far made possible.

[1] Allen, W. M.: Am. J. Physiol. **92**:174 (Feb.) 1930.

[2] Smith, G. V., and Watkins, O.: Am. J. Physiol. **94**:586 (Sept.) 1930. Watkins, O., and Smith, G. V.: Am. J. Physiol. **96**:28 (Jan.) 1931.

In the human menstrual cycle the progestin secreted by the active corpus luteum following ovulation normally prevents further ovulation and brings about the characteristic premenstrual, secretory changes in the endometrium, the ovarian follicle hormone, estrin or folliculin, being a necessary factor in this process. The decrease in progestin toward the end of the cycle is followed by menstruation. To account for the rise and cadence of the corpus luteum and the concomitant variations in progestin, it is necessary, for the present, to postulate that when the graafian follicle reaches a certain stage in its growth under the influence of the gonad-stimulating hormone of the anterior hypophysis there takes place increased hypophyseal activity, with consequent ovulation and luteinization. Further, since progestin inhibits ovulation and also inhibits the action of pituitary transplants in causing maturity in rats,[3] it apparently depresses the pars anterior. It may be, therefore, that the regression of the corpus luteum is due to depression of the pars anterior by progestin.

Fertilization of the ovum is the normal occasion for survival of the corpus luteum and the continued action of progestin, which prevents menstruation and causes increased proliferation of the endometrium, sensitizing it for implantation of the ovum and decidual formation. This situation accompanies the appearance in the blood and urine of large amounts of the luteinizing hormone, the production of which is taken over from the anterior hypophysis by the trophoblast and later by the placenta. Although death of pregnancy in experimental animals follows the removal of progestin by ablation of the corpus luteum, in human beings pregnancy has been known to progress normally after early ovariectomy. Apparently, progestin is not a necessary factor for survival of pregnancy once placentation has occurred. This point is further borne out by the well known regression of the corpus luteum after the middle of gestation. In this connection some factor other than decrease of the luteinizing hormone must be sought to explain the regression of the corpus luteum in late pregnancy, for there is still much luteinizing hormone so long as the placenta survives. On the same basis, some factor other than progestin must account for the usual inhibition of ovulation in later pregnancy and lactation.

Although menstruation normally follows on the withdrawal of progestin, Hartman's[4] work on monkeys would indicate that the flowing is actually the positive effect of anterior pituitary activity in the presence of the folliculin accumulated during the previous cycle. It has already been stated that the follicle hormone is necessary for the endometrial proliferation caused by progestin. Thus folliculin, produced under the influence of the gonad-stimulating hormone of the anterior hypophysis, and progestin, produced under the influence of the luteinizing hormone of the same gland, are both synergistic and antagonistic. In their simplest form some abnormal conditions in the female reproductive phases are due to a lack of balance between these four factors. For example, insufficient gonad-stimulating activity by the pars anterior or inadequate ovarian response would make for amenorrhea or scanty menstruation and sterility. Evidence of this insufficiency is the genital hypoplasia so common in these cases, indicating too little follicle hormone, one of whose functions is to cause uterine and vaginal growth. Further, an abnormally persistent corpus luteum would also account for sterility and amenorrhea. This situation simulates the condition of pseudopregnancy as seen in animals. Administration of the gonad-stimulating hormone is indicated under these circumstances to override the corpus luteum, but as yet no potent preparation for clinical use has become available. The follicle hormone has been tried quite extensively, with only slightly encouraging results. We have used it in the form of theelin[5] and a crude but potent extract of urine from pregnant women, with partial and uncertain benefit. Giving this hormone alone would not be expected to remedy these conditions unless it activated the anterior hypophysis, but definite evidence of this is lacking. On the other hand, sterility might follow if the anterior hypophysis were too active, overriding progestin and causing menstruation before the fertilized ovum could become implanted.

By the same process of reasoning, abnormal menstruation may result from excessive activity of the gonad-stimulating hormone or excessive follicular response or from insufficient production of the luteinizing hormone or inadequate supply of progestin from the corpus luteum. Although, undoubtedly, other endocrine and constitutional factors are involved, administration of the luteinizing hormone or progestin is indicated. There is still no clinical preparation of progestin. We have given intramuscularly in various doses the luteinizing hormone, prepared from the urine of pregnant women by the method of Evans.[6] To date, eight patients with too frequent and excessive menstruation have been treated, causes for flowing other than endocrine having been eliminated. All were definitely relieved; one of these had dysmenorrhea also and was relieved. It is interesting that one patient complained of hot flushes following treatment. The luteinizing hormone failed to stop the flowing in a case of fibroids. Three other cases have been treated, with relief: a case presenting nausea and fainting spells at the time of menstruation, a case of pelvic inflammation with flowing, and a case of endometriosis with pain and flowing, unrelieved by previous conservative operation. It is still too soon to regard these early results as more than hopeful, but they indicate beneficial results following administration of the luteinizing hormone, either through a direct effect or through stimulation of progestin.

On the same basis, it was reasoned that insufficient progestin, by failing to maintain the decidua and thus impairing the vitality of the ovum, might be a factor in miscarriage. Seven other patients, from two to six months pregnant, were given the luteinizing hormone in total doses of from 50 to 100 cc. over periods ranging from five to twenty days. Of these, four were flowing, two were flowing and vomiting, and one was vomiting. All were managed clinically as cases of threatened miscarriage. In six, all flowing and vomiting ceased within ten days. The seventh patient had a marginal placenta praevia and was delivered. Three patients have since miscarried. The other three are getting along normally from two to six weeks after treatment. No conclusions can yet be made as to clinical results.

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[3] Hisaw, F. L.; Meyer, R. K.; Fevold, H. L., and Leonard, S. L.: Anat. Rec. **44**: 205, 1929.

[4] Hartman, C. G.; Firor, W. M., and Geiling, E. M. K.: Am. J. Physiol. **95**: 662 (Dec.) 1930.

[5] The Doisy crystalline preparation supplied by Parke, Davis & Co.

[6] Parke, Davis & Co. and Dr. E. A. Sharp of that company cooperated in supplying us with this and other preparations.

For the present our chief interest centers in the change of endocrine balance in these pregnant patients following the administration of the luteinizing hormone. We have studied the folliculin of the blood and the urine by the Allen-Doisy rat test. A number of the patients had markedly high folliculin levels as compared with normal patients at the same stage of gestation. The blood regularly showed a decrease in folliculin, five or more days after the start of treatment. Having first satisfied ourselves that the amounts of folliculin in different specimens of urine can be compared satisfactorily in terms of urinary creatinine, we found that all these patients had definitely less folliculin in the urine when it was tested after from five to nineteen days of treatment. As a control, three of these patients were not given the luteinizing hormone until after a week of miscarriage routine, during which time there was no folliculin change.

This finding led us to study folliculin excretion in rabbits. We are using urinary creatinine again as a means for obtaining comparable results and are also measuring the twenty-four hour urine output for calculating total excretion. Preliminary experiments thus far indicate the following: Injection of large doses of theelin in normal and spayed doe rabbits results in only a little excretion, less than 10 per cent of the amount given. If luteinizing hormone is given before and with theelin, the normal rabbits show strikingly increased folliculin excretion, but the spayed rabbits do not show any increase. If progestin is given before and with theelin, there is a 50 to 75 per cent recovery in the urine in both normal and spayed animals.

These experiments show that progestin has another function; namely, that of promoting excretion of folliculin. Further evidence of this was found in one of the pregnancy cases mentioned in which the urinary folliculin was determined the day after the first injection. It was increased. By the tenth day it had decreased markedly. Since the folliculin in the urine as well as the blood of these patients decreased following continued administration of the luteinizing hormone, we have, in this, additional evidence of an inhibitory influence of progestin on the actual production of folliculin.

Although the clinical results of giving luteinizing hormone in early pregnancy are still too few to be used as a basis for any conclusions, we feel that the finding of marked drops in the folliculin level after treatment, together with the experimental discovery of the effect of progestin on folliculin excretion, indicates actual physiologic reactions which may in time have valuable clinical application.

SUMMARY

1. The functions of progestin and its rôle in the normal human menstrual cycle and in pregnancy have been briefly outlined within the limits of our present knowledge.

2. The luteinizing hormone which stimulates the production of progestin has been administered, with promising results, to nineteen patients whose chief symptom was abnormal flowing.

3. Early clinical and experimental evidence points to another function of progestin; namely, that of inhibiting the production of the follicle hormone and promoting its excretion.

Free Hospital for Women.

THE HYPOPHYSEAL-OVARIAN RELATIONSHIP

QUANTITATIVE STUDIES WITH ESPECIAL REFERENCE TO HYPERPLASIA OF THE ENDOMETRIUM *

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Endometrial hyperplasia has long been one of the major problems of gynecology. Its exact etiology has been unknown, but its relationship to a disordered ovarian function has been recognized.

The material presented in this paper is taken from studies carried out on the etiology of endometrial hyperplasia [1] and on the functional relationship between the hypophysis and the ovary.[2] These studies suggest that certain disorders of the hypophyseal-ovarian relationship may have considerable importance in our understanding of endometrial hyperplasia.

In applying the results of animal experiments to the interpretation of conditions in human beings, much confusion has arisen on account of differences in terminology as applied to the estrual and the menstrual cycles.

Allen [3] has accurately described the estrual cycle of the mouse. The unmated mouse has a period of estrus every four to five days. This period is characterized by cornification of the vaginal epithelium. Ovulation takes place during the latter part of the estrual phase, but the corpus luteum remains inactive unless the animal is allowed to copulate. If copulation takes place with a vasectomized buck, a stage of pseudopregnancy results. This stage of pseudopregnancy corresponds to that phase of the human menstrual cycle lying between the fourteenth and the twenty-eighth days.

Two or three days before the onset of estrus in the mouse, the epithelium becomes markedly active, the gland cells multiply, and numerous mitotic figures are present. There is definite pseudostratification of the epithelium, and a fair amount of secretion is found in the glands. There is edema of the stroma. During pseudopregnancy the gland cells lose their pseudostratified appearance and become more regular. No mitoses are present, and there is some enlargement of the stroma cells. In the mouse, therefore, there are two distinct phases; one before ovulation and one after.

In the human being, following the cessation of the menstrual period, the uterine epithelium is of low columnar type. There are no mitoses and no secretion in the glands. The stroma is moderately edematous. After a few days the gland cells multiply, mitoses are present, and the mucosa increases in thickness. The edema becomes somewhat more prominent.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

[1] Burch, J. C.; Williams, W. L., *and Cunningham, R. S.: Experimental* Studies on the Etiology of Endometrial Hyperplasia, Surg., Gynec. & Obst. **53**: 338-345 (Sept.) 1931.

[2] Burch, J. C., and Cunningham, R. S.: Effect of Placental Extracts on the Ovarian Stimulating Properties of the Anterior Hypophysis, *Proc.* Soc. Exper. Biol. & Med. **37**: 331-332 (Jan.) 1930. Wolfe, J. M.: A Cyclic Variation in the Capacity of the Anterior Hypophysis to Induce Ovulation in the Rabbit, Am. J. Anat. **48**: 391-419 (July) 1931.

[3] Allen, Edgar: The Estrus Cycle in the Mouse, Am. J. Anat. **30**: *297-371* (May) 1922.

Following ovulation, the corpus luteum is formed. In the human being this structure functions irrespective of the act of copulation. In the uterus at this time (from sixteen to twenty-two days after the cessation of menstruation) numerous tufts or papillae project into the glands. The nuclei of the epithelial cells assume a more central position. There are no mitoses and there is no pseudostratification. The stroma cells increase in size and form a compact layer in the upper portion. Later, around the twenty-fifth day, the edema becomes quite marked. From this brief description it can readily be seen that the changes occurring in the human being are very similar to those found in the mouse.

The ovary has two known secretions, one first observed by Frank [4] and later studied more fully by Allen.[5] This has usually been called the "female sex hormone." In our opinion, it is more aptly designated as "estrin." Allen and Corner [6] have isolated another hormone, derived from the corpus luteum, which, when injected into rabbits, causes changes similar to those found in pseudopregnancy. By means of this extract of the corpus luteum, Allen and Corner have further been able to maintain pregnancy after the removal of the ovaries. Frank [4] has also shown that the estrus-producing hormone can be found in detectable amounts in the blood of human beings, beginning on the fourteenth day and increasing until menstruation.

It is fairly clear, then, that the changes preceding ovulation are the result of the estrous hormone and that the changes following ovulation are the result of the combined action of these two hormones. It is from this point of view that we have approached the problem of interpreting hyperplasias. These conditions have been thought to be the result of an ovarian dyscrasia, but it has not previously been possible to determine the type of this dyscrasia from the curettings.

Schroeder,[7] Shaw [8] and Graves [9] have all noted that, in their cases of Swiss cheese hyperplasias, no corpora lutea were found and that the ovaries were cystic. From this work the logical inference is that hyperplastic changes are the result of the unopposed action of estrin. We [1] have been able to confirm this hypothesis by comparing specimens of hyperplasia with the endometrium of spayed mice which had been injected with extracts of estrin and of corpus luteum and with a combination of the two. From these comparisons it was possible to demonstrate specific histologic pictures characteristic of each hormone.

Sections from twenty-eight cases of Swiss cheese hyperplasia were studied in the light of these comparisons and were found to be quite similar in many respects to the normal human endometrium of the sixth to the fourteenth day and to the endometrium of a mouse which had been injected with estrin. The Swiss cheese pattern is one of the most striking features of human hyperplasia but is not, in our opinion, of as great significance as the more minute changes of stroma edema, glandular pseudostratification and epithelial mitoses which are common in the estrin phase of the normal human cycle, in hyperplasia of the endometrium and in spayed mice injected with estrin. We have also observed two cases of typical Swiss cheese hyperplasia in which the ovaries contained no corpora lutea but did contain cysts of the graafian follicles. The fluid from these cysts was injected into spayed animals with the production of estrus. The endometrium of these experimental animals was quite similar to that seen in the respective human cases from which the fluid was obtained. From these observations we feel that it is legitimate to conclude that hyperplasia of the endometrium results from an unopposed action of the estrus-producing hormone.

The easiest and simplest explanation of an unopposed action of estrin is that the patient has failed to ovulate, since without ovulation there can normally be no corpora lutea. This failure to ovulate may be due to a breakdown in the inherent mechanism of ovulation or to simple mechanical conditions, such as inflammatory thickening of the tunica albuginea or to dense adhesions. These conditions prevent rupture of the follicles.

It has long been thought probable that some other organ played a part in the ovarian cycle. Experimental evidence of this was presented independently in 1927 by Smith and Engle [10] and by Zondek and Aschheim.[11] These changes have been confirmed repeatedly. Ovulation was a variable feature of the phenomena. Friedman [12] has shown by transplantation experiments that ovulation is the result of some humoral mechanism. Knauer [13] had previously come to the same conclusion. Fee and Parkes [14] hypophysectomized rabbits within one hour after copulation and found that ovulation did not occur. In connection with this experiment it should be borne in mind that the rabbit does not ovulate spontaneously but only after copulation. Smith and Engle [15] found that anterior hypophyseal tissue taken from guinea-pigs in the estrous period had relatively little capacity to increase the size of the ovary, while glands taken from animals in diestrus were more potent in this regard. These observations suggested that there might be a variation in the amount of the hormones secreted by the anterior lobe of the hypophysis during the different phases of the estrual cycle.

This contention was further strengthened by a series of experiments carried out in this laboratory.[16] Female rats were divided into experimental and control groups. The animals of both groups were spayed two weeks before the specific experiments were carried out. The animals in the experimental group received a series of six subcutaneous injections of an alcoholic extract of human placenta (given at twenty-four-hour intervals). The hypophyses of the animals of each group were transplanted into immature female mice as test animals. The ovaries of the mice receiving anterior lobe tissue from the injected rats were much larger than those receiving anterior lobe substance from the control group. The ratio was 5 to 2.

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To further test this concept of a variation in the hormones produced in the hypophysis, concurrent with the normal estrual cycle, a large number of experiments have been carried out on the capacity of the anterior hypophysis of the sow to produce ovulation in the normal sexually mature rabbit.[17] The work of Corner [18] on the estrual cycle of the sow was used as a basis for the selection of the donors. The material was selected on the killing floor of a local abattoir and brought immediately to the laboratory. The hypophysis was removed and the anterior lobe dissected out and carefully weighed. It was then crushed in physiologic solution of sodium chloride and ground up with sterile sand. The mixture was centrifugated for thirty minutes and the supernatant fluid drawn off. This was diluted to the point at which 1 cc. represented 5 mg. of the fresh tissue. This fluid was injected in varying amounts into the marginal ear vein of sexually mature female rabbits. It is obvious that the fluid did not contain as much tissue as we have calculated, but a constant technic has been used and whatever error was present has been the same in all experiments. The rabbits injected either were killed or had the ovaries examined by laparotomy within from twenty-four to thirty hours after the injection. When the hypophysis was taken from a sow in proestrus, an amount of the suspension representing 1 mg. induced ovulation in a rabbit. Ten milligrams of anterior lobe tissue was necessary to induce ovulation when the donor sows were in heat. Forty milligrams was required to induce ovulation when the ovaries of donor sows contained active corpora lutea. These results indicate a definite cyclic variation in the capacity of the anterior lobe to produce ovulation.

The evidence reviewed in the foregoing indicates that estrin is probably the direct etiologic factor in the production of endometrial hyperplasia. This effect could result either from the presence of an excessive amount of their hormone or from the absence of some substance or mechanism which normally holds its action in check. It seems to us that the hormone produced by the corpus luteum is the agent which is most likely to be responsible for this action; this seems especially pertinent since the ovaries from cases of hyperplasia have been found to be uniformly lacking in corpora lutea. It should further be noted that the failure in ovulation (which obviously results in absence of corpora lutea) could well be due to some interference with the normal activity of the hypophysis. This could be either a deficiency in the substance producing ovulation or a failure in its release or utilization.

SUMMARY

Our experiments tend to show that endometrial hyperplasia is due to a relative excess of estrin. This of course can result from either an actual excess or a relative excess. The latter seems more probable. The ovary and the hypophysis are closely associated and each affects the other. There is a definite cyclic variation in the capacity of the anterior hypophysis to produce ovulation. Variations and deficiencies in the ovulation cycle might easily cause alterations in the menstrual cycle with idiopathic bleeding as a symptom.

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THE EFFECT OF HYPOPHYSECTOMY ON OVULATION AND CORPUS LUTEUM FORMATION IN THE RABBIT *

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That the secretion of the anterior pituitary is essential to gonadal function seems to be one of the most firmly established facts in the physiology of the reproductive system. With ablation of the anterior pituitary, follicles cease to develop and those with cavity formation undergo atresia. The uterus and vagina decrease in size and their cyclic changes cease. In the male the effects are equally pronounced. Pituitary implants restore gonad activity. In immature rats and mice, pituitary administration precociously develops the reproductive system, and in adults past the menopause it will induce estrus.

Some recent work has shown that the pituitary sex hormone (or hormones) is secreted into the body fluids with almost amazing rapidity. This work at the same time has raised a question regarding the essentiality of the anterior pituitary in stimulating the growth of the corpus luteum. These results are so striking that we deemed it worth while to repeat and extend the experiments, with a somewhat altered technic. The results obtained form the basis for this paper.

The work to which we refer is that reported in a series of papers by Fee and Parkes [1] in rabbits. This form, as first shown by Heape,[2] a finding which has been repeatedly confirmed, does not ovulate spontaneously but only after mating or other sexual excitement and then within a period of from ten to twelve hours. Fee and Parkes, with a technic which they have ventured to characterize as hypophysectomy, decerebrated a series of rabbits at varying periods after mating, dissected out the pituitary in part of the animals and left it in situ in others. Ovulation took place only if the pituitary was left in place for a period of an hour (approximately) or longer. According to these findings, then, the pituitary, which had been secreting at a rate only sufficient to bring about a development of the follicles to the condition obtained in the nonmated estrus rabbit, by coitus was stimulated to secrete within the period of one hour sufficient gonad-stimulating hormone to bring about the maturation of the follicles. More surprising still was the observation that in the animals the development of the corpora, although somewhat slowed, nevertheless was normal in character for a period of thirty-six hours after copulation. Longer periods of observation were not reliable and seldom possible because of the severe general effects of the decerebration. These investigators carefully stated that this period of growth of the corpora did not show that their further development could take place independently of the pituitary; nevertheless the results suggest this possibility.

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* From the Department of Anatomy, Columbia University College of Physicians and Surgeons.

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

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In our hypophysectomies we have not used a technic which subjects the animals to a severe trauma, such as does decerebration, but one which leaves them in an essentially healthy condition. It seems unnecessary to describe the operative procedure in detail. It will suffice to state that an oral approach through the soft palate is used. The capacious blood sinus in which the pituitary lies, surrounded by its dense capsule, is injected with warm bone wax. The capsule is then exposed and opened, and both lobes of the pituitary are removed with a cannula and negative pressure. It is not a blind operation, all essential structures being visible. There is little bleeding. The animals show a good recovery and usually remain in excellent condition. Ten successful operations have been performed and the total removal of the anterior and posterior pituitary confirmed by a study of serial sections of the contents of the sella. Periods of from one and a quarter to seventeen hours elapsed between mating and the actual removal of the pituitary. In each of seven of the animals, both ovaries were inspected and one of them was removed for sectioning about twenty-four hours after hypophysectomy, the second ovary being removed twenty-four hours later. In each of two of the animals, one ovary was removed four days and the other eight days after the hypophysectomy. In every case, ovulation occurred, even though the pituitary was removed within an hour and a quarter after the mating. Since follicular growth and maturation will not take place in the absence of the pituitary gonad-stimulating hormone, it is evident that the stimulus afforded by copulation has caused, by some at present unknown mechanism, an immediate and considerable discharge of this hormone. This response is striking and gives a conception of the anterior pituitary as a secretory-labile and responsive structure, which in spontaneously ovulating forms, prior to ovulation, may pour out its stored secretion by some releasing mechanism.

The second phase of our study concerns the essentiality of a pituitary secretion for the complete development and function of the corpus luteum. Our work confirms the observation of Deanesly, Fee and Parkes that corpus luteum formation takes place in rabbits even though the pituitary has been removed but a short time after mating and, consequently, several hours before ovulation has taken place. The corpora in such animals twenty-four hours after hypophysectomy (from fifteen to thirty hours after ovulation) appear to be normal, nor is there a slowing in the rate of development compared with unoperated controls, as noted by the previously named investigators. This is probably due to the fact that our operation left the animals in excellent condition, whereas their procedure led to the death of the animal within a period of from one to two days. Even in the ovaries removed at the end of the second day after hypophysectomy, or from fifty to fifty-five hours after mating, the corpora show no striking developmental failure as compared with the normal controls.

The lutein cells are large and typical in appearance, though apparently not quite as numerous as in the controls. The corpora have consequently a somewhat larger central cavity.

In the two animals in which the left and right ovaries were removed four and eight days, respectively, after hypophysectomy, the corpora show, however, a contrast with the normal. In those removed after a period of four days it is evident that little growth beyond that of the second day has taken place. Although there are many normal appearing lutein cells present, they are not as numerous as in the controls, and the central cavity is consequently much larger. The number of connective tissue cells in proportion to the lutein cells is much greater than normal. In the ovaries removed eight days after hypophysectomy the corpora have regressed. They appear avascular and small. They contrast markedly with the normal, which is larger and highly vascular and in which there remains but a remnant of the central cavity.

It is thus evident that after hypophysectomy the corpora will develop with little or no deviation from the normal for a period of approximately two days. They undergo this development without any postovulatory secretion of the hypophysis. Furthermore, since most of the animals were virgins, there is no possibility of any postovulatory pituitary secretion being still present from previous ovulation. That they will not undergo complete development under these conditions, however, is evident from the ovaries removed at four and eight day periods.

In order to see the effect on the completely formed corpora, a twenty-two day pregnant rabbit was hypophysectomized, one ovary being removed four days and the other eight days later. This animal aborted some of the fetuses on the third to the fourth days. When a laparotomy was performed on the fourth day, there were three dead fetuses in the uterus. The corpora, which have been shown to be essential to gestation in experimental animals, in this rabbit showed avascularity and regression when the animal was opened on the fourth day. So far as can be demonstrated by a single experiment, it is apparent then that the secretion of the anterior pituitary is essential for the functional maintenance of the corpora. Their regression may be primarily responsible for abortion which follows pituitary ablation.

COMMENT

In view of the well known effect of certain extracts (alkaline) of the hypophysis on the formation and maintenance of corpora lutea,[3] it is not surprising that complete development of the corpora failed in the absence of the hypophysis. The finding that they would develop for a period in excess of two days in the absence of any postovulatory secretion of the hypophysis was unexpected. That such is the case would seem to have some bearing on the problem of whether the anterior pituitary secretes only one or more than one hormone which act on the ovarian constituents. This problem has invariably been considered and its experimental solution attempted by noting the effects of the administration of pituitary implants or of extracts which have been made in different ways. Some of this work will be briefly mentioned. In work reported earlier by one of us,[4] it was found that injections of a saline supension of beef hypophyses prevented the restorative effects of implants on the ovaries and testes of hypophysectomized rats. Later, Evans and Simpson[5] reported that such injections prevented the stimulating effects of implants in immature rats. The latter investigators, because of these findings, postulated an antagonism between the gonad-stimulating and the growth hormones. The latter, they believed, carried the luteinizing factor. Engle [6] has shown that there are characteristic differences between the effects of injection of the urine of pregnancy with its anterior pituitary-like principle and of implants. Work on the purification of extracts has strengthened the idea of the duality of the pituitary sex hormone, especially the recent paper by Fevold, Hisaw and Leonard [7] and the work of Zondek.[8]

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Although the data up to the present seem insufficient and the field not thoroughly enough explored to justify dogmatizing on the question of the unity or duality of the pituitary sex hormone, nevertheless there appears to be a definite trend toward the belief that there are two sex hormones secreted by the anterior hypophysis, one stimulating follicular growth, the other luteinization. The skeptics have been as yet satisfied to express their doubts in other ways than by publication. The purpose of introducing the subject here is to emphasize another angle of the question; namely, the conditions obtaining in a sexually mature female when no extracts are injected. Earlier in the paper it has been shown that, although the pituitary was removed shortly after mating, ovulation was followed by a normal growth of the corpus luteum for a two day period. It is evident that, if the granulosa is acted on by two hormones, one causing growth of the granulosa, the other luteinization, the two must be present in these animals at the same time. There must be a "selective utilization" of these hormones by the granulosa before and after follicular rupture. The follicular growth followed by ovulation and the lutein transformation cannot under these conditions be due to the successive secretion by the pituitary of a follicle or gonad-stimulating hormone and of a luteinizing hormone.

In the intact animal a similar condition exists, at least in some forms. In the pregnant rabbit the follicles grow and reach the size that is attained in the nonpregnant estrus animal. These animals will mate. Ovulation is induced by the injection of the urine of pregnancy.[9] The confirmation of this and even ovulation after injection of a saline suspension of anterior hypophysis has been recently reported by Wolfe.[10] In the rat during gestation, mating [11] may occur. Even the cyclic formation of normal follicles followed by luteinization [12] has been reported. If there are two pituitary sex hormones, it is evident that in these cases both are present throughout pregnancy and that here as well as in rabbits hypophysectomized shortly after mating there must be a selective utilization of them by the ovarian elements. Follicular growth and luteinization under physiologic conditions thus cannot be explained by the successive secretion by the pituitary of two hormones. The luteinizing hormone, if it is a specific hormone, is present throughout, for the corpora lutea of pregnancy are being maintained. In its presence, follicular growth and maturation take place. Factors such as toxicity of extracts or nonphysiologic rates of growth of the granulosa, leading to its premature entrance on the second phase of its cycle, namely, luteinization, may be responsible for the luteinization effects of extracts, rather than the fact that they contain a specific luteinizing hormone.

SUMMARY

Rabbits have been hypophysectomized by a procedure that permits prolonged survival.

Ovulation will take place although the pituitary is removed after a postmating period but slightly over an hour in length, thus confirming the report of Fee and Parkes. In such animals the corpora lutea develop normally for approximately a two day period. Further changes are atypical.

The development of the corpora in the absence of any postovulatory pituitary secretion is discussed in regard to its bearing on the question of the unity or the duality of the pituitary sex hormones.

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THE PHYLOGENY OF MENSTRUATION *

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A little over a hundred years ago the medical world experienced a flurry when the French anatomist Cuvier announced that menstruation could no longer be considered a distinctly human characteristic, since he had found (as had indeed a few forgotten authors before him) that female apes and monkeys share with women this periodic bleeding phenomenon. The menstrual process was therefore set down as a primate character, particularly since, as Heape first pointed out, the menstrual cycle in both monkeys and women involves identical changes of the reproductive organs.

The general biologist may concede that in its spectacular manifestations menstruation is a "primate character." But if one searches for fundamental or even for the more superficial physiologic causes, and if one investigates other mammals and even the lower vertebrates and attempts to discover what they have in common with man, anthropocentric ideas receive jolt after jolt. I propose to show the universality of uterine bleeding in the vertebrate series and to offer this generalization as another example of the kinship of man with the whole of creation. Perhaps, eventually, the traditional attitude of the medical man who considers the human body as something apart from brute creation will eventually disappear entirely, leading to a better understanding of the body which it is attempted to improve or cure. There is nothing essential or physiologically important about the human body that is not already present or clearly foreshadowed in the lower forms. To illustrate this by examples nearer to my theme, fact on fact is accumulating to demonstrate the generalized character of the reproductive process, and I propose to show that uterine bleeding is no exception.

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Sixty years ago it was still held that menstruation constitutes a preparation for the reception of the egg, which, it was held, was discharged at or about the menstrual period. The entire theory of menstruation started with this assumption. After much painstaking labor on the part of the gynecologist it is now known that ovulation occurs almost exactly in the middle of the cycle. On this fact there was immediately elaborated another far-reaching theory of menstruation which emphasizes the ovarian factor, the corpus luteum, or rather its degeneration, as the cause of menstruation, a *post hoc, propter hoc* theory which in its turn is quite devoid of any experimental proof. The theory is still in vogue, however, despite the fact that the work of Heape, van Herwerden, Corner and Allen has shown that the corpus luteum is unessential to the menstrual rhythm. A large mass of material from the Carnegie monkey colony, shortly to be published, involving hundreds of menstrual cycles, precisely diagnosed as to whether ovulatory or nonovulatory, should finally convince the student of the problem that an extra-ovarian factor is involved in the menstrual flow. Clinically the uterine bleeding is undifferentiable whether it occurs from a 12 mm. hard, interval type of uterus, accompanied by a "resting" ovary, or from a 22 mm. soft, succulent, vascular organ produced under the stimulus of a corpus luteum.

The challenge to point out the extra-ovarian factor concerned in bleeding was met by the Carnegie Laboratory through a cooperative piece of work (Hartman, Firor and Geiling), in which the possible rôle of the anterior pituitary was analyzed. It was found that uterine bleeding which the ovarian hormone produced when injected into monkeys (Allen) was ineffective when injected into the hypophysectomized animal, whereas in such, as in normal animals, anterior lobe substance in any form always caused bleeding. These experiments mark a beginning in the analysis of the process.

But the problem is not a simple one. To the biologist it has broad ramifications. He thinks of menstruation as just one more form of uterine bleeding which begins, as shall be shown, with the cartilaginous fishes and therefore goes back far into geological time. Perhaps the essential physiology of menstruation has a more venerable history than has been imagined.

In the monkey there are many types of uterine bleeding. Aside from the postpartum hemorrhage, the bleeding presaging abortion, and different types of pathologic bleeding, there are as regular or frequent occurrence: (1) menstruation with ovulation; (2) menstruation without ovulation; (3) the placental sign or bleeding of implantation, and (4) the intermenstrual or mittelschmerz bleeding. Leaving out the last as the more obscure (the probable homologue of the estrous bleeding of dogs and cows), I am tentatively considering menstruation and the placental bleeding as homologous; that is, conditioned by the same physiologic factors. The close connection between menstruation and reproduction, on which three profound students of the problem, Robert Meyer, Robert Schröder and Emil Novak, have insisted, thus attains a new significance. The fact is that throughout the vertebrate series, wherever the embryo lives in a brood chamber at the expense of the parent beyond the point to which the stored yolk of the egg carries it, there one finds bleeding into the brood chamber. This is true of man and of monkey, the "menstruating" forms that have a particularly hemorrhagic type of implantation; it is true of other forms having a burrowing type of placentation, such as lemurs, carnivores and rodents; and it is equally true of the nondeciduates, like the sheep and the cow. In many of these the bleeding into the uterine cavity has been described and the erythrocyte content of the "uterine milk" studied (Bonnet, Kolster). Because of the widespread nature of the phenomenon, its students have ascribed to the hemoglobin and its derivatives a nutritive function, probably most often a means of conveying iron, perhaps at times conveyance of oxygen itself.

Passing to the predominantly egg laying classes of vertebrates (fishes, amphibia, reptiles, birds) one finds that, in all except the birds here and there, in species, genera or even whole families, life habits have become associated with viviparity, intra-uterine or intra-ovarian development, even to the extent of yolk sac or allantoic implantation. Here one encounters the same story over and over again: where the embryo depends for development beyond the egg stage on the mother's (or the father's) body substance, there one may find in the brood chamber red blood cells mingled with the pabulum provided by the nutritional organ.

With the exception of certain brood pouches as the back of the Surinam toad, the gular pouch of Darwin's toad, the pouch of the male sea-horse and pipe-fish, the nutritive organs are the derivatives of the müllerian duct. This is practically the only mucous membrane in the body through which the passage of red blood cells is a physiologic process. Is this under the control of the anterior lobe? If so, this gland already shows a difference of function in the pregnant and in the nonpregnant shark. This principle is susceptible of test by experiment on the appropriate species.

From among the great variety of conditions under which the embryonic nutrition is effected in the various truly viviparous fishes and amphibia, let us select three:

1. Many eggs of *Salamandra atra* are shed into the oviduct, but only one or at most two embryos are destined to develop and to be born; the survivor lives at the expense of the abortive eggs, swallowing them bodily as it floats in the embryotrophic "soup" provided by the oviduct. This semifluid mass is laden with red blood cells, according to Wiederscheim to provide oxygen directly to the embryo.

2. In the stingray *Pteroplatea* there grow out from the uterine wall long slender threads (trophonemata) which are highly vascular and covered with secreting glands. These strands enter the gill-slits of the embryo, hang into the gut and become not stomach tubes but secretory stomach villi. Their secretion feeds the embryos. Red blood cells find their way into the uterine cavity and the embryonic intestines.

3. *Zoarces*, a bony fish, has an intra-ovarian method of reproduction in which the spent follicles or corpora lutea literally and directly feed the developing embryo. The phenomenon is a kind of diagrammatic representation of the so-called trophic function of the corpus luteum of pregnancy, postulated by some writers on the corpus luteum. The shed eggs of *Zoarces* remain within the ovary, held in place by the emptied follicles, which metamorphose into corpora lutea in the form of secretory villi. They become greatly injected by capillaries, which form veritable retia mirabilia. Secretion increases according to the needs of the growing embryos, which remain within the ovarian chamber until birth. In the embryotrophic substance of the ovarian chamber and in the gut of the embryo, red and white blood cells are found in numbers. Stuhlmann thinks

that the blood serves the purpose of oxygenation directly. How blood gets into the ovarian cavity this author is at a loss to say, since he finds the blood vessels intact. With his failure to analyze the mechanism of bleeding in *Zoarces,* I have a sympathy, as the same difficulty is encountered in explaining the blood loss of the bitch and the cow at heat and the monkey during the intermenstrual bleeding.

Sufficient has been said to introduce those who have not thought of the matter to the widespread occurrence of bleeding into the müllerian derivatives. The study of the control of the bleeding has not yet begun, so far as the lower vertebrates is concerned. The suggestion of Hartman, Firor and Geiling that a hypophyseal factor may be generally involved seems to me to be worth following up. The common denominator in the physiologic control of the various types of bleeding is likely to be the fundamental principle involved. Menstruation according to this view begins with the Salachian fishes—and there is again "nothing new under the sun."

Wolfe and Madison streets.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. FRANK, DRS. G. V. S. AND O. W. SMITH,
DRS. BURCH, WILLIAMS, WOLFE AND CUNNINGHAM,
DR. SMITH AND MR. WHITE,
AND DR. HARTMAN

DR. EDGAR ALLEN, Columbia, Mo.: Dr. Frank finds that the amount of theelin in the blood and that excreted in the urine increase before menstruation. In quantitative analyses of the theelin content of human ovarian tissues, Drs. Pratt and Newell and I found greater amounts of theelin at the time of ovulation; i. e., in the interval of the menstrual cycle. Perhaps the suggestion made by Drs. G. V. S. and O. W. Smith that there is a change in the threshold of excretion will be the answer to these differences. The matter of a name for follicular hormone is urgent. Five different names are now in use: "follicular hormone," "estrin," "amniotin," "female sex hormone" and "theelin." Dr. Doisy's name for the crystalline material which he has isolated is "theelin." I propose its more general use. The paper by Dr. Smith and Mr. White presents one of the outstanding achievements of recent years. I have noted in the clinical literature that Zondek and Aschheim have obtained priority in some citations for this work. Dr. Smith has concerned himself little with discussion of priority. Careful scrutiny of the literature will determine that publication by Smith and Engle preceded that of Zondek and Aschheim. I was greatly interested in the discussion of mitosis by Drs. Burch, Williams, Wolfe and Cunningham. The action of theelin is principally to cause division of cells of the accessory genital tissues. Their suggestion that progestin may in some way stop growth of the tissues after ovulation is interesting. I wish that Dr. Hartman might have talked further about the matter of anterior hypophysis stimulation of menstruation. With the anterior lobe intact in castrated animals, enough growth can be induced in the endometrium by injections of theelin so that, when injections are discontinued, menstruation begins. To just what extent the anterior lobe can work independently of the ovary should be studied further. Dr. Hartman's negative results in a castrate of eight months might give an indication, at least, that some growth in the endometrium from the action of theelin is required before menstruation can be produced.

DR. FREDERICK L. HISAW, Madison, Wis.: I propose to limit my remarks to the physiology of the corpus luteum. At present it is known that the corpus luteum of the sow secretes not one hormone but three, in addition to estrin. Progestin, then, or corporin, as we speak of it in our laboratory, is only one of the three. Corporin acts on the uterus and perhaps produces other physiologic changes. Another hormone, relaxin, acts on the pelvic ligaments; it does nothing else, so far as is known. A third hormone acts on the vaginal mucosa of rodents, producing mucigenation typical of the condition found during pregnancy. I wish to speak about the action of corporin on the endometrium. Dr. Allen has shown that theelin stimulates endometrial growth in monkeys, and its discontinuance is followed by menstruation. We have found that theelin at a given dosage (40 rat units daily) can be continued presumably indefinitely (forty days at least) without signs of menstruation, but if this dosage is lowered (20 rat units daily), menstruation occurs. A decrease of the dosage, then, or a discontinuance of theelin treatment is followed by menstruation. The endometrium is characterized by numerous mitoses, low glandular mucosa (from 35 to 40 microns), only slight coiling of the glands, and, at the time of menstruation, no premenstrual swelling of the gland cells and little or no fraying of the mucosa. When these conditions are produced in a castrated monkey, and the theelin treatment is replaced by injections of corporin, a typical premenstrual condition is developed. The uterine glands are coiled and dilated, the glandular mucosa is high (from 70 to 80 microns), mitoses are very few or absent, and just previous to menstruation there is a pronounced fraying of the mucosa. Corporin, then, modifies the theelin type of endometrium into the premenstrual type normally associated with a corpus luteum. When theelin in large doses is given simultaneously with corporin, only the theelin effects are seen; that is, theelin overrides corporin. This reaction, then, is one in which theelin must act first, followed by corporin, as corporin cannot modify the uterus of an untreated castrate. Neither does corporin seem to postpone the time of bleeding following discontinuance of theelin treatment or postoperative bleeding following ovariectomy.

DR. CARL R. MOORE, Chicago: This symposium has been intensely interesting, to a certain extent enlightening, and also to an extent confusing, because of the various aspects presented and the differences occurring among animals of different species. I have sympathy for the clinician who is presented with problems of hormonal administration, for even in the laboratory, with experimental animals, it is often difficult to bring a creditable interpretation to bear on repeatable results. The phase of these problems of most interest to me is the demonstrable links between the different gland activities and their influence on one another. In my experimental work I have recently offered certain suggestions regarding the nature of these interlinkings, and the present discussions have contributed materially to this conception. The chief aspect that the clinician should bear in mind is that the administration of sex hormones (theelin, estrin, testis hormone and the like) so acts on the anterior lobe of the hypophysis as to diminish the gonad-stimulating hormones available and, as a result, injury to the gonads occurs. Perhaps the clinician has often attempted a stimulation of a so-called hypogonadal state, ephemeral as this may be, by administration of preparations of the female or the male hormone. In actual laboratory observations, however, instead of a stimulation there is really an injury to the intact gonads. Substances produced by the ovary do not stimulate its activity, nor do substances produced by the testis stimulate this organ. The injury produced on both appears to be due to the hypophyseal depression from the gonad hormones. This reciprocal relation has been indicated in many of the papers presented today and by the remarks of other speakers. How many other endocrine glands will prove to have a place in the chain of events is impossible to predict at present. The report of Drs. Burch, Williams, Wolfe and Cunningham, in which it is shown that the activity of the hypophysis varies with the amount of the female hormone present, substantiates the reciprocal nature of the interactions between the hypophysis and the ovary.

DR. JEAN PAUL PRATT, Detroit: This symposium suggests to the clinician many possibilities for diagnosis and treatment, but a word of caution is necessary, not to draw conclusions too hastily from the results of animal experiments. Estrus of animals must not be confused with menstruation, for the conditions are not identical. Disturbance of menstruation is one of the best indicators of abnormality of sexual organs and therefore it is natural that one should look for some regulator of menstruation. Even the fact that monkeys menstruate must not lead one to conclude that their menstruation is similar to human menstruation, or that the two primates will necessarily respond in a similar way to glandular products. In 1926, in this section at the Dallas meeting, I reported the injection of the follicular hormone in women and noted at that time that one could get definite evidence of growth of the uterus. I had hoped to be able also to report bleeding, but in many attempts there has been no evidence of menstruation being reproduced by the injection of theelin; in many observations, however, the evidence of growth has been repeated. So far as I can see clinically, the only thing that one can expect to get from theelin is growth of the uterus. There have appeared in the literature reports ascribing beneficial results from the use of theelin in dysmenorrhea and in combating symptoms of the menopause. In my experience this conclusion is not justified, for equally good results may be obtained by injection of sterile water, or by other psychotherapeutic measures. For, after all, the symptoms of most dysmenorrheas and the menopause are largely psychic. The suggestions in the symposium give great hope for future therapy, but a great deal of work is necessary to translate the results of animal experiments into terms of human therapy.

Dr. M. A. Goldberger, New York: Our interest has been mainly in studying the occurrence of the female sex hormone, as we call it and the anterior pituitary hormone, in the human female. The first chart that Dr. Frank showed might be emphasized; in this the method of extraction of the female sex hormone was graphically produced. Whereas previously we used to throw the blood sludge away after the female sex hormone was extracted, we are now able to use that sludge and extract the anterior pituitary hormone.

Dr. Charles Mazer, Philadelphia: The degree of uterine development should be the main guide in the administration of female sex hormone or estrin. The product does not exert any action on the ovaries. It does, however, produce growth and vascularity of the uterus. If the uterus is normal in size, the existing condition is usually due to failure of the second phase of the ovarian cycle, luteinization, for which the luteinizing hormone of the anterior lobe of the pituitary gland should be administered. In my experience, low voltage irradiation of the ovaries and pituitary gland is the most effective agent in restoring menstrual periodicity. The functional menorrhagias and metrorrhagias likewise respond to this treatment.

Dr. Robert T. Frank, New York: I pity the clinician—and I am one—if he attempts to translate into clinical medicine what the advance guard is feeling out in physiology. We have had a great disappointment in that theelin (I think that it is time to adopt one name and, in deference to Dr. Doisy's epochmaking discovery of crystallization of this product, I think we might use that name) works harmfully on the ovary. I cannot see how it can act in a stimulating fashion, and I predict that we shall meet with similar disappointments when we have a commercially active product to use on the human being. Dr. Smith and Mr. White brought out that the amount of a hormone that one finds in a gland is no indication whatever of the amount that it is secreting into the circulation. Dr. Allen mentioned or referred to a change in threshold of the kidney toward the excretion of theelin. The work in our laboratory has definitely shown such a change in threshold, as we reported last year in several papers. Whether any other explanation can be found is yet to be seen. The time has also arrived to call a halt in ascribing every part action of a hormone to a special hormone. For instance, to have collected eleven factors for the prepituitary is carrying the thing to an extreme. Further study will probably show that simplification is possible. Our old concept, at least our old histologic concept, of menstruation should be kept up for the time being until we have a more definite conception of what the exact mechanism of the menstrual bleeding is. Finally, I want to call attention to a clinical application. The physician who would not think of treating a patient with thyroid extract in a thyroid disturbance or in any disturbance of metabolism, without making a basal metabolism determination, the physician who insists on taking frequent samples of blood to note the sugar level in a case of diabetes or suspected diabetes, or the physician who insists on electrocardiograms in every case of organic and functional heart disease still seems to balk and hesitate in applying these blood and urine hormone tests, which are available and which are comparatively simple, in clinical and in functional disturbances of the genital system, otherwise entirely indistinguishable and readily confused with one another.

Dr. Philip Edward Smith, New York: I want to say a word about the proposal of Dr. Allen that the female sex hormone or follicular hormone be called "theelin." This is a patented product and it appears to me improper to use in our scientific papers a patented name to designate an active principle. The matter of patents affects the investigator, the practitioner and the public. There is at present a general and unfortunate tendency to patent all products discovered in the laboratory. The assurance that pharmaceutic houses will place on the market properly standardized products is important, but is it getting at the problem in the proper way for the investigator to patent his discoveries? I am not referring particularly to theelin, which is the least objectionable of the examples. Should the investigator or the laboratory or the university levy tribute from the public for these discoveries? There is enough wealth in this country to support investigation, and this wealth will be more freely given if there are not any royalties. I think that the American Medical Association could well sponsor the setting up of a national body for the standardization of these products. The investigator would then have no reason for patenting his discoveries and the element of commercialism need then not enter into his research work. In connection with Dr. Frank's paper, I believe that the assays which he is making of the content in the blood of the anterior pituitary hormone are giving invaluable information. It is the hormone that is secreted into the blood that counts; it is not the hormone that is stored in the gland. The assay of pituitary activity by implants gives an indication of the stored hormone of that gland; it may not give any information in regard to the amount of the hormone being supplied to the animal. Implants of the thyroid, for instance, would give an entirely erroneous picture of the amount of secretion which goes into the circulation in exophthalmic goiter and in colloid goiter. It is by using the blood assay method in which Dr. Frank is pioneering that we shall get information of the greatest value.

Dr. John C. Burch, Nashville, Tenn.: One of the most interesting phases of this work is the different action of the various hormones in varying concentrations. This is well shown by Friedman's work on the rabbit. It is important to remember that the amount of hormone circulating in the blood and at the point of action is the essential thing. In regard to the apparent contradiction between the work of Dr. Hisaw and his co-workers and that of Dr. Cunningham and myself, I wish to state that our donor rats were injected with large amounts of an alcoholic extract of human placenta over a short period of time. Following this method we got an increase of the ovarian-stimulating power of the anterior hypophysis. Dr. Hisaw found that when estrin was injected over a long period of time the reverse was true and there was no stimulation. It is possible, therefore, that these two sets of experiments were different in the type of substance injected (because placental extracts may contain some factor other than estrin) as well as in the duration of the injections. Variations in either of these two factors may have been responsible for the difference in the results.

Dr. George van S. Smith, Brookline, Mass.: The term "luteinizing hormone" for the substance prepared from the urine of pregnant women may be incorrect, for, when given intravenously, it produces ovulation as well as luteinization. The recent work of Evans indicates that this hormone is active on the ovaries only if the anterior hypophysis is present. Hence the ovarian effects may be due entirely to its stimulation of the anterior hypophysis. I was glad to hear Dr. Hisaw bring up the subject of quantitative endocrine relationships; e. g., small amounts of theelin are necessary for the progestational proliferation of the endometrium caused by progestin, but large amounts inhibit the action of progestin. This situation seems to be true also in the matter of lactation. Some of the experimental discrepancies may be found due to incorrect dosage. Dr. Ernst Philipp of Berlin implanted portions of the anterior lobes of the pituitary glands of three patients who died shortly after delivery and found the ovaries of the test animals unaffected. This observation indicates again that the sex hormones of the anterior hypophysis are depressed after the middle of pregnancy and during lactation, as gaged by the regression of the corpus luteum and the absence of ovulation. I feel that enlightenment in these matters will depend on the studies of lactation that are now being pursued.

Dr. Carl G. Hartman, Baltimore: I wish to thank Dr. Novak for giving others the chance to criticize my views, and I will take to heart Dr. Frank's suggestion as to the name, although I must say that names will not get one anywhere in studying physiologic causes. I am sorry that Dr. Hisaw did not discuss further the relaxing hormone, because Dr. W. L. Straus, one of my colleagues, has found that in the monkey there is a definite relaxation of the symphysis, so much so that one can put one's finger into the slit formed by spreading the ischial tuberosities. This takes place within the last three weeks of gestation, and the ligaments are again thoroughly knit up within ten days after parturition. No matter how hard one pulls, one can't get a spread of over 3 mm. in the normal animal, whereas it is easy to get a spread of 15 mm. with rather moderate pressure at which the puerperal monkey flinches with pain. Lastly, one other warning as to the gaging of results: Dr. Friedman has obtained most variable results with the study of his method of causing ovulation not only by the route of administration, namely, whether intravenous, intraperitoneal or subcutaneous, but also by the distribution of the dosage over a period of time.

SLIPPING OF THE UPPER FEMORAL EPIPHYSIS

A STUDY OF SEVENTY CASES *

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A condition occurring between the ages of 8 and 17 years is described in the literature as epiphyseal fracture, separation, or slipping, epiphyseal coxa vara, adolescent rickets, pathologic fracture, and femoral osteochondritis of adolescence. It is a disease characterized by weakening of the epiphyseal disk at the femoral head, permitting subsequent displacement of the head on the neck.

We are presenting a study of seventy cases of this disease from the New York Orthopaedic Dispensary and Hospital. Sixty-three were seen in adolescence; seven were adult residuals. Thirty-nine were in males, thirty-one in females. In thirty-one cases only the left hip was affected; in twenty-four the right, and fifteen were bilateral. Bilateralism is about as common as in coxa plana and only slightly more common than in frank infections.

Of fifty-five patients, 65 per cent were overweight, half of them having endocrine imbalance. Many of the overgrown children were of the type described by Mikulicz—a large child with flabby, weak musculature and more than the usual subcutaneous fat. Often a patient, obese in adolescence, was normal or even slender five or ten years later. In four cases endocrine therapy was tried with no effect on the epiphyseal disk, although weight was reduced. Many grew rapidly in height or weight just before the onset. A number of slender patients were tall for their age, thus having more than the usual weight on their hips.

Premature union of growth centers, as compared with the normal side, is usual at the affected hip in the trochanters, head and acetabulum. It was noted at 12 years in one girl. The same thing may be noted in other inflammations at the hip. It is therefore considered as evidence of the wide extent of circulatory disturbance in the region. It does not indicate endocrine imbalance, as it is not seen in the unaffected hip or in other regions of the body.

At or shortly before the onset, twenty-four patients out of forty-five (53 per cent) had tonsils diseased or removed, five (11 per cent) had appendicitis, and five had other infections. Seventy-five per cent had some definite infection, which suggests that infection elsewhere may be an etiologic factor.

THE RÔLE OF TRAUMA

Trauma hastens the onset of symptoms and initiates or increases displacement. The trauma is usually trivial and rarely more than occurs in the normal activity of the average child. Greater displacements are more common with trauma which might have been severe. Displacement may be gradual with no trauma. One case showed displacement of two-eighths, three-eighths, four-eighths and five-eighths inch at successive examinations with no injuries and with no aggravation of symptoms. Trauma may aggravate the displacement at any time. We have found no differentiation into traumatic and nontraumatic types.

CHARACTERISTICS OF ONSET

The age at onset in thirty-six boys was from 9 to 16 years with 75 per cent between the twelfth and fifteenth birthdays. In the cases beginning before the age of 12 years there was unusual stress on the epiphyseal line by reason of severe trauma or excessive overweight. Uninfluenced by these factors, the age at onset was from 12 to 16 years for boys.

Symptoms were present before displacement in seventeen hips in thirteen boys. Those younger than 13 reached that age before slipping occurred, the preslipping stage averaging thirteen months. Preslipping stages beginning after 13 averaged only five months. Prompt displacement is apt to occur at the age when epiphyseal cartilage is forming bone rapidly.

Displacement occurred in thirty-three of the adolescent boys; 66 per cent slipped between the thirteenth and fifteenth birthdays. This is the age of slipping for boys. The six younger boys (aged from 9 to 12 years) were subject to unusual stress in the form of severe trauma or excessive overweight. Unusual stress may be regarded as the cause of displacement before the slipping age period. Conversely, the five boys whose first displacement occurred after the fifteenth birthday were not materially overweight or remembered no trauma up to the day of slipping.

In the five months from July to November, 66 per cent of the boys had onset of the disease and 70 per cent had onset of the displacement. This incidence expresses the seasonal activity of the boy—the period of vacation and of football playing.

Analysis of the years of onset showed no epidemic features.

The age of onset of symptoms in girls was from 8 to 13 years, with 89 per cent occurring between the tenth and fourteenth birthdays. Displacement occurred at the tenth to fourteenth year, with 87 per cent between the eleventh and fourteenth birthdays. The seasonal incidence was one month earlier for girls; their period of activity was not prolonged by football. The girls outside the usual age period and the female preslipping cases showed the same relations to trauma, excess weight and duration of the preslipping stage as have been noted for boys.

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* Read before the Section on Orthopedic Surgery at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 11, 1931.

PATHOLOGY

Twelve hips have been opened at operation. In the specimens examined, the bone and epiphyseal line showed no evidence of rickets, infection or osteomalacia. The capsule and periosteum about the neck were thickened, sclerosed and avascular. These changes were present in the hip operated on in the preslipping stage (fig. 1).

CLINICAL FEATURES

There are four stages of the disease—preslipping, slipping, quiescent and residual. When there are no acute signs and no spasm, the lesion is quiescent. When the lesion is quiescent and the epiphyseal line is united, it is residual.

In these cases we have found the following: In the preslipping stage limp and pain are usual; fatigue, stiffness and disability are frequent (table 1). Examination reveals limp, pain on motion, and often spasm or atrophy. All motions except extension tend to be limited, internal rotation being most commonly affected. When the hip is flexed it tends to abduct and rotate externally, allowing further flexion. After slipping has occurred, the symptoms and signs are more pronounced. Complete disability is often present but is not dependent on the amount of displacement. Shortening, tenderness and, occasionally, crepitus and swelling may appear. When the femur is rotated, the head may be palpable under the gluteal muscles—a sign almost pathognomonic of slipped epiphysis. In the quiescent stage, the signs and symptoms have subsided and may be less than in the preslipping stage; spasm has disappeared. Limp, pain, fatigue and limitation of motion often persist into the residual stage.

Table 1.—*Clinical Features*

	Before Slipping, Per Cent	After Slipping, Per Cent
Symptoms:		
Limp	93	96
Pain	100	93
Fatigue	83	78
Stiffness	90	94
Disability in athletics	67	93
Physical Signs:		
Limp	88	84
Pain on motion	71	92
Spasm	67	84
Tenderness	33	98
Shortening	17	85
Atrophy	45	71
Limitation of Motion:		
Flexion	67	84
Abduction	64	92
Adduction	44	84
Internal rotation	86	98
External rotation	77	85
All motions	..	71
Deformity:		
Flexion	0	*
External rotation	11	67
Adduction	..	27

* As the absence of flexion deformity was not apt to be recorded, its incidence is indefinite. Flexion deformity, when present, was slight.

ROENTGENOGRAPHIC OBSERVATIONS

In the preslipping stage the epiphyseal line is abnormally wide; the end of the neck may be irregular and somewhat decalcified. Thickening of the capsule may be recognizable at the margins of the joint. Most of the other epiphyseal lines in the region are somewhat closer to union than on the normal side.

In the slipping stage the same changes are present, and there is a varying degree of upward displacement, external rotation and adduction of the neck on the head. The displacement of the head uncovers the end of the neck superiorly and anteriorly. Callus may be present in the angle between the head and neck inferiorly; as it matures it may obscure the original outline of the neck and give the appearance of an epiphyseal line in a plane more vertical than usual. Examination with the femur rotated internally causes the shadows of the head and neck to superimpose, simulating reduction of displacement.

Table 2.—*Example of Index of Motion*

	Motion	Factor	Product
Flexion	145	0.4	58
Abduction	45	0.4	18
Adduction	30	0.2	6
Internal rotation	30	0.2	6
External rotation	60	0.1	6
Extension	10	0.1	1
Index of function			95

Hypermobile	over 110
Normal	90 to 110
Good	60 to 90
Fair	50 to 60
Indifferent	40 to 50
Poor	30 to 40
Bad	under 30

After quiescence, the callus is mature, there is no decalcification unless there has been confinement in plaster, the end of the neck is less irregular, and the epiphyseal line is narrow.

In the residual stage, ossification of the epiphyseal line is completed and slight calcareous deposits indicating arthritis may appear at the articular margins. Arthritic changes are more extensive and more definite several years later.

Marked lumbosacral anomalies, such as a transitional type of vertebra, were present in 43 per cent of the cases.

DIAGNOSIS

A child between 8 and 18 years of age complaining of a limp, or pain in the hip, thigh or knee may have a preslipping or slipped upper femoral epiphysis. The hip should be carefully examined for limitation of motion, particularly internal rotation and abduction, and for spasm at the limits of motion. The presence of these physical conditions necessitates roentgenographic examination, by which the diagnosis can almost always be established. Questionable cases should have careful observation, limitation of activities, and repeated roentgenographic examinations.

The roentgenographic and other features of this condition are so different from those of other conditions occurring in this age period, such as tuberculosis, fracture, dislocation, residuals of coxa plana, osteomyelitis and suppurative arthritis, that discussion of differential features is superfluous. The active stage of coxa plana is usually confined to children under 10 years of age. The absence of changes in the epiphyseal line distinguishes nonsuppurative arthritis.

METHODS OF EVALUATION OF RESULTS

If operative procedure does not correct displacement, the operation has failed. Since upward displacement of the neck is the most important deformity to correct, is the easiest to measure, and is usually corrected when anything is accomplished, this may be used for convenience as the measure of the success of the operative procedure. Judging displacement requires great care. Rotation and callus formation obscure the relation of the head to the neck. To check the interpretation, additional measurements may be used—the distance from the head to the lesser trochanter, the adduction of the neck relative to the axis of the head, the amount of the end of the neck uncovered by the head superiorly.

The function of the hip may be expressed by means of an index. If each motion of the hip is arbitrarily evaluated for its importance in function, the index will be obtained by multiplying the degrees of each motion by the constant of value and adding these sums. The constants we have used are:

For flexion and for abduction........... 0.4.
For adduction and for internal rotation... 0.2.
For external rotation and for extension 0.1 (table 2).

We shall use this index to express the functional result in these hips. As improvement in symptoms accompanies improvement in function, the index offers a fair statement of the outcome of the case. A normal hip has an index of between 90 and 110.

RESULTS

In judging the results of operative procedures, comparisons must be made with the results in cases in which operation was not performed. Fifteen hips were given no operative treatment. Their displacement varied from zero to five-eighths inch; in four it was three-eighths inch or more. Twelve had treatment by bed or caliper brace; three had no treatment. All with good function improved; all with impaired function improved greatly; in all, the symptoms were much improved or eradicated. This record was not approached by most operative procedures that we have used.

There are thirty cases that were followed to the residual stage. At the last examination the ages of the patients varied from 12 to 27, with an average of 17 years. The time since the last orthopedic treatment varied from five months to fourteen years, with an average of three and a half years and a mean of three years. The age at operation had no detectable influence on the result, although with closed reduction in a young patient it is possible that further slipping might occur.

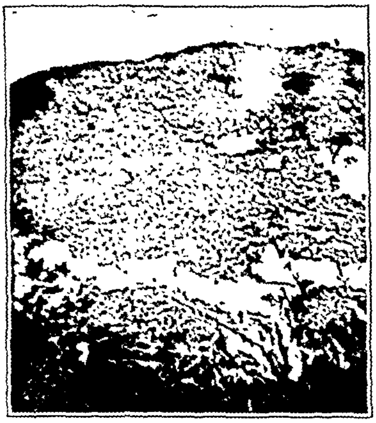

Fig. 1.—Sclerosis and avascularity of the tissues about the femoral neck. The specimen is from a patient operated on in the preslipping stage.

CLOSED REDUCTIONS

Closed reductions were usually forceful abductions followed by forced internal rotation. In twenty-one cases, closed reductions of this type were utilized. Eighteen closed reductions failed, six patients having subsequent open operations. Two were about 50 per cent successful; one was almost completely successful but displacement was slight in these three. Operations were performed within one month of the onset of symptoms and within three and a half weeks after displacement.

The functional results following abduction manipulation are judged in the eighteen cases which we have seen in the residual stage. Two of these had partial correction; one was improved from an index of 20 and displacement of 1⅛ inches to a final index of 96 with displacement of five-eighths inch; another was improved from an index of 12, displacement of seven-eighths to an index of 34, displacement of five-eighths. Of the remaining sixteen patients, all unimproved anatomically, twelve had a final index of below 50; four had hips which were good functionally, but one was worse than before manipulation. All but one of the unsuccessful attempts at reduction were performed more than four months after the onset of symptoms and more than one month after slipping, and callus was present in each case. The three displaced hips having no attempt at reduction show results as good as manipulated hips with similar displacements.

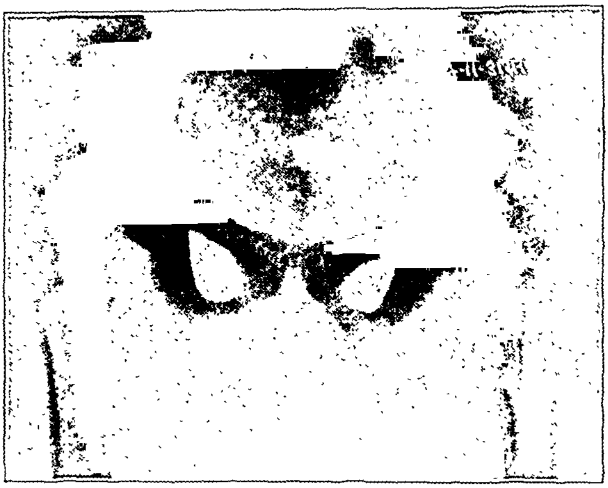

Fig. 2.—Result of manipulation in hips with similar displacements. On the left the abduction method was used unsuccessfully. The right was reduced by traction four weeks after slipping. Callus projects inferiorly at the end of the neck on the right.

We have tried reduction by traction in seven cases this year, with some success anatomically (fig. 2), but we have as yet only limited knowledge of the functional result. Manual traction of from 300 to 600 pounds is gradually applied with the aid of stirrups at the ankle and knee, the leg being adducted. When it is believed that reduction has occurred, the leg is rotated internally, force being used if necessary. It is then roentgenographed and, if reduced, a double spica is applied in abduction and internal rotation.

Traction was also used in 1922 in two cases. Each was successful anatomically. Each operation was done five days after slipping and within two months of the onset of symptoms. The indexes of function in the residual stage were 70 and 100. They were symptomless except that one patient had some pain in wet weather or when fatigued.

OPEN OPERATIONS

Open reductions were attempted in eleven cases, with fair anatomic success in three. The Smith-Petersen approach was used. Five of the eleven hips had the head freed at the epiphyseal line; six had cuneiform osteotomy near the line. Visible epiphyseal cartilage was removed and the displacement corrected. The leg was immobilized, usually in abduction, internal rotation and extension. Seven of these—five of which had attempts at closed reduction—were followed to the quiescent or residual stage. Only three showed any notable improvement anatomically; these were improved functionally but still had low indexes, 51, 47 and 33. Of the four that were not materially improved anatomically, one was functionally slightly better, one was slightly worse, and two were much worse. These results do not compare favorably with cases in which no attempt at reduction was made. Probably a bar to successful reduction in these operations was callus formation on the neck inferiorly which would catch in the margin of the head. This suggests the need of exposing this area at operation so that the callus can be removed and the head pushed up. All these open operations were in cases of long standing, with marked callus formation. It is quite possible that open operations done in fresh cases might show much better results.

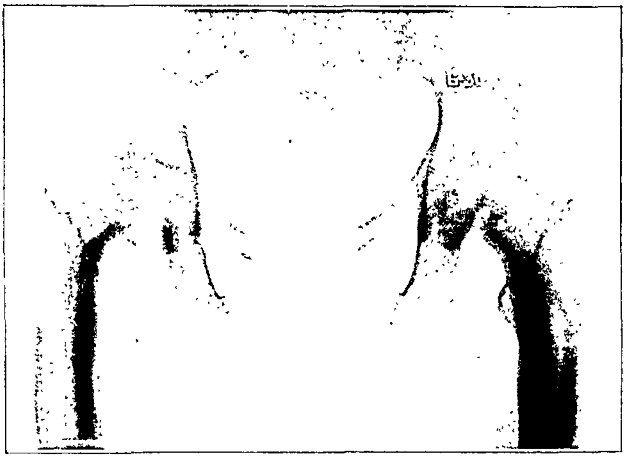

Fig. 3.—Marked bilateral displacement with good function. On the left the index of function was 73; on the right it was 83. There was no operation.

Subtrochanteric osteotomy was done in four cases with displacement from five-eighths to seven-eighths inch. One was a stiff hip in adduction deformity which was relieved. The others showed flexion or extension of the upper fragment after operation. In one case this added 2 inches (5 cm.) to the shortening. This case was not improved functionally. The remaining two cases were materially improved and attained indexes of 80 and 70.

Two patients eventually had reconstruction operations, one after four attempts at reduction, including an open operation; the other after an attempt to hold the head in place with a spike which penetrated the joint.

RELATION OF DEFORMITY AND OF REST TO FUNCTION

In the final examination in the residual cases and in the initial examination in all cases we found instances of marked deformity with good function (fig. 3) and of slight deformity with impaired function (fig. 4). There is no constant relation between deformity and function. The average function is less with greater displacement, but this is partly accounted for by greater traumatism in treating them.

Seven patients had two or more months in bed before operation. Their average functional index went up from 30 to 56 before operation and was only 60 in the residual stage. Three were worse after operation. Rest accomplished more in restoring function than did attempts to improve the deformity. One third of the cases in which two and a half or more months were spent in bed became quiescent within four months. All cases with less rest period took longer than this, averaging ten months. These improvements with rest indicate that impairment of function is due in part to inflammation. We believe that it is as important to treat this inflammation as to treat the deformity.

AN OPERATION FOR YOUNG PATIENTS

The seven cases which did not slip were followed to the quiescent or residual stage. None of the four cases relieved of weight bearing during the preslipping stage developed any displacement; of the remaining sixty-six cases, in thirty-one of which a preslipping stage was definitely recognized, only three reached the residual stage without slipping; thus the chance of slipping is great, and two or even three slippings are not infrequent. All cases in which slipping did not occur became symptomless, with normal function. In cases with displacement followed to the residual stage, the index was 46 or less in 50 per cent. To allow displacement to occur is to exchange a potentially normal hip for a 50 per cent chance of having less than 50 per cent function.

In the preslipping cases, slipping must not be allowed to occur. Displacement may be prevented by confinement to bed or possibly by a caliper brace. A brace with weight bearing is of no value in these cases. Such treatment is satisfactory if the patient is old enough to attain ossification of the epiphyseal line in a short while. When the patient is young, an operation to hasten ossification of the epiphyseal disk is better and safer than long periods of bed or brace treatment. Such an operation, used in one case,[1] is as follows: The capsule is opened through a Smith-Petersen incision, and several holes are drilled through the neck and epiphyseal line into the head. Bone slivers may be inserted in the drill holes. When the patient operated on, a girl, aged 11 years, was up after three months in bed she had an index of 79 and the head was united to the neck (figs. 5 and 6). This was a twenty-point

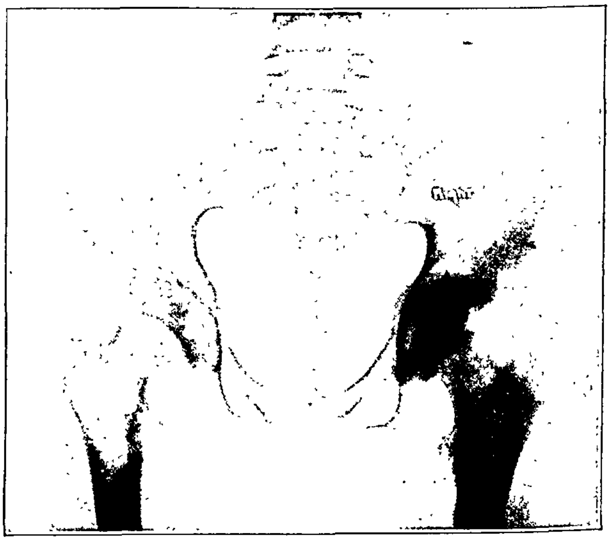

Fig. 4.—Slight displacement at the left hip with poor function. The index of function was 21.

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[1] The operation has been used in two more cases since June, 1931, with excellent results to date.

loss in the index representing the effect of operative trauma. We expect this to improve, but a good hip is assured.

That this operation will not cause noteworthy growth disturbance has been demonstrated in cases of coxa plana. For example the earliest of these, done in 1928, shows, in 1931, growth of the neck equal to the normal side. The operation has been done in coxa plana fifteen times.

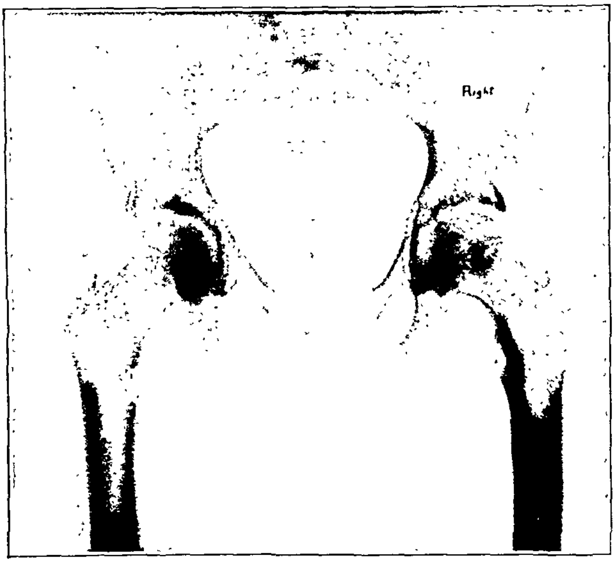

Fig. 5.—Preslipping right hip before drilling was done. The epiphyseal line is wide, the end of the neck is irregular, and the other epiphyseal lines in the region are narrower than on the left.

SEQUELAE

Thirty cases that have reached the residual stage were examined roentgenographically for arthritis. None was found in fourteen patients, aged from 12 to 17. Sixteen patients aged from 15 to 27 showed arthritic calcification, most commonly at the margin of the acetabulum; these cases had displacement of from one-fourth to 1½ inches, the average being five-eighths inch. The seven adults showing the late residual of slipped epiphysis all showed arthritic changes. In six it was marked. In unilateral cases the unaffected hip showed no evidence of arthritis.

As all patients over 17 years of age showed evidence of arthritis, we cannot say what will prevent it. It is likely that more attention to rest treatment for the inflammation, treatment of focal infections, general hygienic measures, more efficient reduction of displacement, and prevention of slipping in preslipping cases would improve the results as regards arthritis.

CHOICE OF TREATMENT

Our impressions of the selection of methods of treatment are as follows:

General treatment should include a weight-reducing diet and elimination of foci of infection.

The preslipping case is an emergency case. Weight bearing should be stopped until the disease is quiescent and the epiphyseal line ossified or close to union. If this entails a long period of confinement, it may be better and safer to use the drilling operation.

In the slipping stage, displacements of less than three-eighths inch should be treated as preslipping cases unless very recent, in which case closed reduction might be considered. With more displacement the reduction should be attempted if it is less than two months since the onset of symptoms, less than three weeks since the last displacement, and if callus is very slight in amount. However, if the patient is young there will be danger of recurrence of slipping before the epiphyseal line ossifies, and open reduction with eradication of the epiphyseal cartilage would seem preferable. When cases are not recent, as previously described, open reduction may be attempted if the operator has been successful in obtaining reduction in this way. Otherwise it is best to treat the case by rest until quiescent and then do a subtrochanteric osteotomy, with particular attention to preventing flexion or extension of the proximal fragment. This operation is also the treatment of choice in cases that have reached the residual stage with deformity that interferes with function or predisposes unduly to arthritis.

In all operative procedures, rest from weight bearing should be emphasized. A spica should not be left on more than two and a half months, but there should be no weight bearing for at least three months after operation nor until there is a good range of motion with no spasm except on forced motion. Double spicas are much more apt to maintain reduction than single spicas.

ETIOLOGY

It has been suggested that this disease is due to trauma, static forces, rickets, osteomalacia, infection and endocrine imbalance. In 1926, Key reviewed the literature and did much to refute these theories. The features that we have reported and the cases described in the literature bring us to a conception of this disease which we find helpful as a working hypothesis and guide to treatment. This hypothesis is that weakening at the epiphyseal disk is due to vascular stasis about it secondary to sclerotic changes in the soft tissues about the femoral neck. The most probable cause of the sclerotic changes is a previous, or occasionally concurrent, infection—a subacute arthritis or, rarely, infection in the neck. Such infection may be metastatic from infection elsewhere.

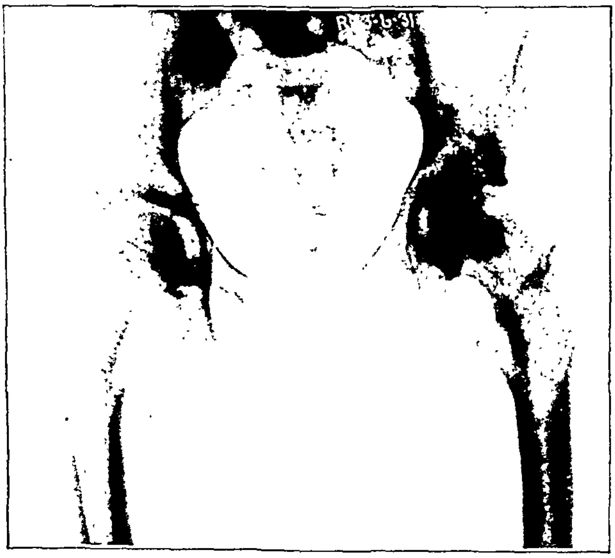

Fig. 6.—Same case as in figure 5 four months after drilling.

Stasis may also be produced in other ways and other ages, which may account for some related

ditions such as coxa plana and osteochondritis dissecans. Transitional cases showing the relation to these other conditions have been excluded from the present report.

This disease is far more common than is generally supposed. Every adolescent child with a hip limp should be examined for it, especially if the child is overweight. If the condition is recognized in the preslipping stage it should be considered an emergency case. Displacement must be prevented. In selecting the treatment to be applied to the given case there must be careful consideration of the age of the patient, the stage of the disease, the presence of callus, and the time since the onset of symptoms and since displacement.

SUMMARY AND CONCLUSIONS

1. Seventy cases of slipping of the upper femoral epiphysis are reviewed.
2. Bilateral occurrence is not infrequent and should always be looked for.
3. Overweight children, whether tall or fat, are more susceptible to the condition. This appears to be due to the greater stress on the hip rather than to any physiologic factor such as endocrine imbalance.
4. Trauma appears to be of importance merely in hastening the onset of symptoms or displacement in a hip which is already diseased.
5. Seasonal variations in onset are accounted for by the seasonal activity of children.
6. The onset of symptoms and of displacement occurs usually during the rapid growth period of adolescence. Exceptions are explained by the factors of weight and trauma.
7. The pathologic features are sclerosis, thickening and avascularity of the soft tissues about the neck, with absence of any primary disease of the bone or cartilage.
8. Sclerotic changes about the neck are followed by a vascular disturbance, resulting in weakening at the epiphyseal disk, which frequently eventuates in slipping.
9. Four stages are described: preslipping, slipping, quiescent and residual.
10. Definite symptoms, physical signs and roentgenographic evidence of the disease are always present in the preslipping stage, and early diagnosis is essential for the best results.
11. After slipping there may be complete incapacitation of the hip or only slight disability, but definite evidence of the condition is always present.
12. Final function is not proportional to deformity.
13. Adequate rest for the hip is the most important factor in obtaining a good result.
14. In hips that have slipped less than three-eighths inch, and in the preslipping cases, rest alone is sufficient treatment. If the period before expected epiphyseal union is longer than six months, drilling across the epiphyseal line will hasten union.
15. (*a*) In hips that have slipped more than three-eighths inch early in the disease and recently, reduction is recommended. (*b*) In later cases with as much displacement, open reduction or subtrochanteric osteotomy after quiescence is advised.
16. In all cases, weight reduction and eradication of foci are indicated.
17. The well developed callus and early union occurring in this condition should be mentioned because of the frequently accepted view that joint fluid interferes with the healing of bone.
18. Arthritis is the usual sequel in adults.

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ABSTRACT OF DISCUSSION

Dr. Irvin Balensweig, New York: I first called attention to this condition in 1926 when, in reviewing a series of cases, I also observed that the end-results were unsatisfactory in patients who were treated by the closed method of reduction. Since that time, further study has led me to believe that this condition, as one sees it in the clinics, has been present anywhere from one to two years prior to the time of observation and that the slipping of the epiphysis is therefore a gradual process except when it is caused by traumatisms, when the head may be grossly displaced. Every attempt should be made to recognize the lesion prior to the slipping; this can be done by subjecting children between the ages of 10 and 12 years to roentgen examination when they present themselves with a history of so-called growing pains in the thighs and an occasional limp. The movements of the hip will be found to be free except those of internal rotation and flexion with the limb in a neutral position; whereas flexion with the limb in external rotation is freer. This sign, to my knowledge, has never been described before. Roentgen examination in these cases reveals a widening of the epiphyseal line, and some fragmentation and areas of absorption in the diaphyseal region. The patients should be treated either by the conservative method of using a Thomas caliper brace or, far better, by a fusion of the epiphyseal line. I am pleased to learn that this type of operation has been carried out at the New York Orthopedic Hospital. It is also wise to roentgenograph hips before and after attempts at reduction in both internal and external rotation. It is only by such a procedure that one can determine the accuracy of the reduction. It is my conviction that when the condition is of long standing reduction cannot be accomplished by manipulative measures.

Dr. Albert B. Ferguson, New York: As to the relation to coxa plana, we have a number of cases that we might consider as transitional between coxa plana and slipping epiphysis. Some of these cases resemble, for example, the preslipping stage of slipping epiphysis, but at such an early age we are not sure whether a coxa plana or a slipping epiphysis will develop, and in some, as we followed them, coxa plana has developed, and in others slipping epiphysis has developed. In the paper we have excluded all transitional cases, both those that show a relation to coxa plana and those that show a relation to osteochondritis dissecans. The same applies to cavitation in the neck of the femur. We have a few cases in which actual cavities have been present in the neck and one case in which there was an actual abscess in the neck, which also showed a slipping epiphysis. We consider the latter as a transitional case and have not included it in the report, which is limited to typical cases of slipping epiphysis. The examination of the hip roentgenographically in internal and in external rotation needs to be emphasized, as Dr. Balensweig has brought out. In these closed reductions in which we have reported a very small percentage of success, most of the reductions have been considered good reductions when roentgenographed after the operation. They were found to be anything but good reductions by examination in positions other than the usual anteroposterior position. The patient could be turned on the face in plaster and rotated until the femur was brought into a neutral anteroposterior position or into an externally rotated position, and the displacement would then be visible just as it was before reduction, and, on the other hand, we have made such films, films in internal rotation, which would be the position after reduction. We have made such films before the operation and then had a picture which was exactly the same as the film after reduction. If one wishes to be sure as to the presence or absence of reduction, one must examine these patients very carefully and in several positions. With regard to traction reduction, on the operating table it is, I think, impossible to use the amount of traction which we have used in accomplishing this reduction. It has been demonstrated in these cases that traction of from 300 to 600 pounds (136 to 272 Kg.) in adduction in cases sufficiently recent will reduce the displacement. We have several cases in which the reduction was practically complete and confirmed by views in several directions. We have, however, had considerable difficulty in maintaining that reduction. At least a third and possibly half of the cases in which we have used traction have later showed some displacement, so that we are not yet ready to report on the final result, either anatomically or functionally.

THE NATURE AND ORIGIN OF THE PIGMENTED STREAKS CAUSED BY SEPARATION OF THE CHOROID[*]

F. H. VERHOEFF, M.D.
BOSTON

It is well known that on ophthalmoscopic examination pigmented streaks are sometimes seen in the fundus in cases in which there has been postoperative separation of the choroid. The streaks are black, have a granular appearance, and may show breaks in continuity. They may be straight or slightly wavy, of various lengths, and quite numerous. Not infrequently they branch. The largest may have about twice the width of a large retinal vein. They are most abundant at the periphery of the fundus, and many of them extend to the limit of the ophthalmoscopic field. Seldom do they reach as near as 2 or 3 mm. to the optic disk. Most of them are more or less meridional in direction and tend to be parallel to one another, but some run in a circular course. In the region of the streaks the fundus may show pale areas and scattered pigment dots. As far as is known, the streaks are permanent. They cause no demonstrable impairment of vision.

The streaks were first described in two clinical cases by Schur[1] in 1913; later Lindner[2] recorded two cases, and Plocher,[3] one case. Schur suggested that folds in the choroid played a rôle in causing them, Lindner that they were due to proliferation of the pigment epithelium such as sometimes occurs after separation of the retina, while Plocher offered no explanation. Fuchs[4] examined microscopically an eye in which separation of the choroid was still present after a perforating ulcer of the cornea. In the choroid he found creases in which the pigment epithelium on one side was in contact with that on the other and assumed that, in cases in which the choroid became replaced, such creases remained and thus explained the black streaks seen ophthalmoscopically. As will be seen later, this explanation was incorrect.

As Fuchs pointed out, these streaks, as seen ophthalmoscopically, differ in important respects from those known as angioid streaks. Especially do they differ in appearance and in the fact that they do not radiate from the optic disk. In spite of these facts, Guist[5] has advanced the view that angioid streaks are due to folds in the choroid, resulting from flat separation of the latter dependent on exudation.

Hitherto the microscopic appearance of the streaks has never been described. Recently I had an opportunity to examine microscopically two eyes in which such streaks were present and five eyes in which separation of the choroid still existed, and I was able to ascertain the exact nature and origin of the streaks. The important features of the cases in which the streaks were found are described herewith. Full details of the other cases are not essential for the purposes at hand and will be omitted.

REPORT OF CASES

Case 1.—A man, aged 68, was admitted to the Massachusetts Eye and Ear Infirmary, Feb. 23, 1928, with the diagnosis of chronic congestive glaucoma and bullous keratitis of the right eye. The tension of the eye was 50 mm. Schiötz and its vision was reduced to light perception with faulty projection. The left eye was normal and had normal vision without a glass.

February 24, an iridectomy was performed on the right eye. April 29, the lens was cataractous. July 6, the tension was 45 mm. (Schiötz). The anterior chamber was obliterated. Cataract operation was attempted, but vitreous was lost and the cataract was not removed. Feb. 23, 1929, light perception was still present. The right eye was enucleated.

Pathologic Examination of Right Eye.—The eye was fixed in a diluted "solution of formaldehyde-U. S. P." (1:10) for forty-eight hours, followed by 2.5 per cent hydrochloric acid in a 70 per cent alcohol for twenty-four hours.

The cornea showed pannus degenerativus and marked changes characteristic of old bullous keratitis. The iris below showed marked fibrosis and was adherent to the cornea from its root to the pupil. The capsule of the lens was ruptured and lens matter was bulging the operative wound, which was covered by conjunctiva and a slight amount of connective tissue. The clefts within the lens were invaded by pus cells, many of which were necrotic, and there was a fairly large mass of macrophages with some pus cells between the lens and the cornea—phacoanaphylactic reaction. The anterior part of the vitreous contained a considerable number of swollen cells, apparently chiefly macrophages. Otherwise the posterior part of the eye was free from evidences of inflammatory reaction, except for a few macrophages here and there on the surface of the retina.

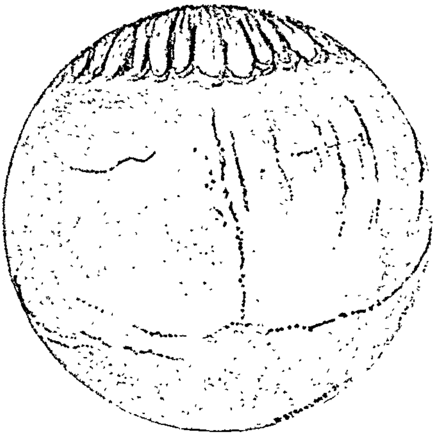

Fig. 1 (case 1).—Temporal quadrant of fundus, after fixation and immersion in glycerin, showing typical pigmented streaks. The retina is in situ.

The optic disk was deeply cupped. The retina and choroid were everywhere in situ. Ganglion cells were still present in considerable numbers in the macular region but were absent elsewhere. The choroid was everywhere smoothly applied to the sclera. Colloid excrescences were very few in number.

When the eye was opened after fixation, the vitreous was found separated from the fundus by fluid. The fundus showed on each side numerous pigmented streaks identical in appearance with those seen ophthalmoscopically after separation of the choroid (fig. 1). Ten of these were large; eight on one side, two on the other. All except two of these large streaks began near the ora serrata and ran in the direction of the disk, more or less parallel to one another. The largest of these was 9 mm. in length and about 0.2 mm. in greatest thickness. At the posterior end of this was a streak about 13 mm. long running equatorially. Two mm. behind the ora, there was another streak about 5 mm. long, which also ran circularly. The smaller streaks ran in various directions, but mostly either circularly or meridionally. The streaks appeared to consist of coarse pigment dots and showed small breaks in continuity. In the vicinity of the streaks the fundus often was paler than elsewhere and showed scattered dots.

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[*] From the Massachusetts Eye and Ear Infirmary.

[*] Read before the Section on Ophthalmology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Schur: Aderhautablösung nach Elliotscher Trepanation, Klin. Monatsbl. f. Augenh. **51**: 372, 1913.
2. Lindner: Ueber Pigment Streifenbildung in der Retina, Arch. f. Ophth. **88**: 230, 1914.
3. Plocher: Ueber Pigment Streifenbildung nach postoperativer Aderhautablösung, Klin. Monatsbl. f. Augenh. **59**: 610, 1917.
4. Fuchs: Ueber Pigment Streifen im Augenhintergrunde, Klin. Monatsbl. f. Augenh. **60**: 797, 1918.
5. Guist: Ueber Pigmentstreifen, Ztschr. f. Augenh. **45**: 61, 1921.

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The streaks were first described in two clinical cases by Schur[1] in 1913; later Lindner[2] recorded two cases, and Plocher,[3] one case. Schur suggested that folds in the choroid played a rôle in causing them, Lindner that they were due to proliferation of the pigment epithelium such as sometimes occurs after separation of the retina, while Plocher offered no explanation. Fuchs[4] examined microscopically an eye in which separation of the choroid was still present after a perforating ulcer of the cornea. In the choroid he found creases in which the pigment epithelium on one side was in contact with that on the other and assumed that, in cases in which the choroid became replaced, such creases remained and thus explained the black streaks seen ophthalmoscopically. As will be seen later, this explanation was incorrect.

As Fuchs pointed out, these streaks, as seen ophthalmoscopically, differ in important respects from those known as angioid streaks. Especially do they differ in appearance and in the fact that they do not radiate from the optic disk. In spite of these facts, Guist[5] has advanced the view that angioid streaks are due to folds in the choroid, resulting from flat separation of the latter dependent on exudation.

Hitherto the microscopic appearance of the streaks has never been described. Recently I had an opportunity to examine microscopically two eyes in which such streaks were present and five eyes in which separation of the choroid still existed, and I was able to ascertain the exact nature and origin of the streaks. The important features of the cases in which the streaks were found are described herewith. Full details of the other cases are not essential for the purposes at hand and will be omitted.

REPORT OF CASES

Case 1.—A man, aged 68, was admitted to the Massachusetts Eye and Ear Infirmary, Feb. 23, 1928, with the diagnosis of chronic congestive glaucoma and bullous keratitis of the right eye. The tension of the eye was 50 mm. Schiötz and its vision was reduced to light perception with faulty projection. The left eye was normal and had normal vision without a glass.

February 24, an iridectomy was performed on the right eye. April 29, the lens was cataractous. July 6, the tension was 45 mm. (Schiötz). The anterior chamber was obliterated. Cataract operation was attempted, but vitreous was lost and the cataract was not removed. Feb. 23, 1929, light perception was still present. The right eye was enucleated.

Pathologic Examination of Right Eye.—The eye was fixed in a diluted "solution of formaldehyde-U. S. P." (1:10) for forty-eight hours, followed by 2.5 per cent hydrochloric acid in a 70 per cent alcohol for twenty-four hours.

The cornea showed pannus degenerativus and marked changes characteristic of old bullous keratitis. The iris below showed marked fibrosis and was adherent to the cornea from its root to the pupil. The capsule of the lens was ruptured and lens matter was bulging the operative wound, which was covered by conjunctiva and a slight amount of connective tissue. The clefts within the lens were invaded by pus cells, many of which were necrotic, and there was a fairly large mass of macrophages with some pus cells between the lens and the cornea—phacoanaphylactic reaction. The anterior part of the vitreous contained a considerable number of swollen cells, apparently chiefly macrophages. Otherwise the posterior part of the eye was free from evidences of inflammatory reaction, except for a few macrophages here and there on the surface of the retina.

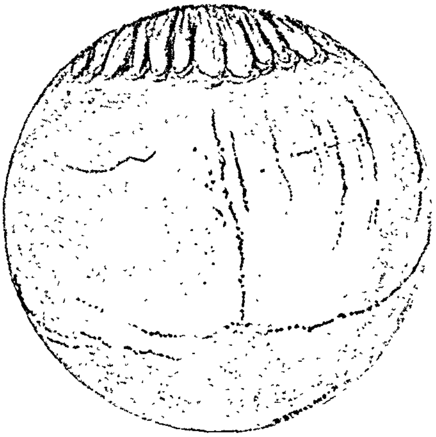

Fig. 1 (case 1).—Temporal quadrant of fundus, after fixation and immersion in glycerin, showing typical pigmented streaks. The retina is in situ.

The optic disk was deeply cupped. The retina and choroid were everywhere in situ. Ganglion cells were still present in considerable numbers in the macular region but were absent elsewhere. The choroid was everywhere smoothly applied to the sclera. Colloid excrescences were very few in number.

When the eye was opened after fixation, the vitreous was found separated from the fundus by fluid. The fundus showed on each side numerous pigmented streaks identical in appearance with those seen ophthalmoscopically after separation of the choroid (fig. 1). Ten of these were large; eight on one side, two on the other. All except two of these large streaks began near the ora serrata and ran in the direction of the disk, more or less parallel to one another. The largest of these was 9 mm. in length and about 0.2 mm. in greatest thickness. At the posterior end of this was a streak about 13 mm. long running equatorially. Two mm. behind the ora, there was another streak about 5 mm. long, which also ran circularly. The smaller streaks ran in various directions, but mostly either circularly or meridionally. The streaks appeared to consist of coarse pigment dots and showed small breaks in continuity. In the vicinity of the streaks the fundus often was paler than elsewhere and showed scattered dots.

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* From the Massachusetts Eye and Ear Infirmary.

* Read before the Section on Ophthalmology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Schur: Aderhautablösung nach Elliotscher Trepanation, Klin. Monatsbl. f. Augenh. **51**: 372, 1913.

2. Lindner: Ueber Pigment Streifenbildung in der Retina, Arch. f. Ophth. **88**: 230, 1914.

3. Plocher: Ueber Pigment Streifenbildung nach postoperativer Aderhautablösung, Klin. Monatsbl. f. Augenh. **59**: 610, 1917.

4. Fuchs: Ueber Pigment Streifen im Augenhintergrunde, Klin. Monatsbl. f. Augenh. **60**: 797, 1918.

5. Guist: Ueber Pigmentstreifen, Ztschr. f. Augenh. **45**: 61, 1921.

Portions of the fundus showing streaks were excised, embedded in celloidin and sectioned as nearly as possible at right angles to the streaks. Before sectioning, some of the blocks were cleared in chloroform, others in glycerin. The streaks could be seen as such while being cut and were therefore definitely identified in the stained sections. One streak was cut for a short distance in serial sections, and another was cut longitudinally for a distance of 3 mm. Microscopically the streaks appeared as well defined thickenings of the pigment epithelium (figs. 2 and 3) and measured from about 0.028 mm. to 0.04 mm. in thickness and from about 0.056 mm. to 0.18 mm. in width. At their sites, the pigment epithelium consisted of from two to five layers of cells densely packed with pigment. The pigment granules retained the spindle form of those seen in normal pigment epithelium. The retina was closely applied to the streaks. In most instances it was slightly bulged up by the streak, but in some instances only its outer layers were compressed by the streak, the inner surface of the retina maintaining its normal level. Occasionally, the surface of the choroid beneath the streak was slightly depressed. In the vicinity of some of the streaks, the pigment epithelium contained somewhat less pigment than elsewhere. In the affected region there were areas, from three to seven cells in width, in which the cells were more densely pigmented than elsewhere and in which there were from one to three pigment cells on the inner surface of the pigment layer.

Case 2.—A woman, aged 73, with general arteriosclerosis and high blood pressure (240 systolic and 100 diastolic) was first seen at the Massachusetts Eye and Ear Infirmary, Jan. 8, 1930. The vision of each eye was reduced to counting fingers at 5 feet. There were numerous scattered retinal hemorrhages in each eye. The tension of each eye was normal.

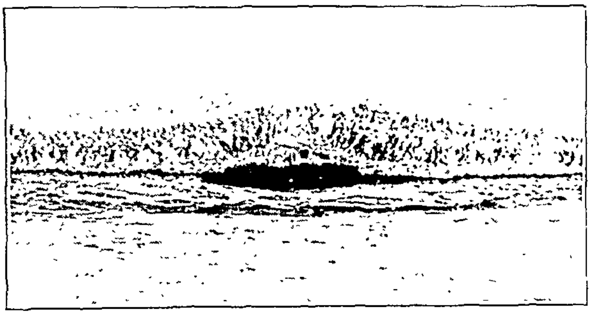

Fig. 2 (case 1).—Section stained in hematoxylin and eosin, showing a pigmented streak cut transversely. The slight depression of the surface of the choroid beneath the streak may be indicative of the preexistent crease; × 116.6.

January 27, the tension of the right eye was 75 mm., that of the left, 17 mm. (Schiötz). The vision of the right eye was reduced to perception of shadows.

January 30, a trephine operation and iridectomy were performed on the right eye, a very large trephine being used.

February 21, extensive separation of the choroid on both sides and below was noted.

November 17, the tension of the right eye was 49 mm., the fundus was not visible and the vision was nil. The right eye was enucleated.

Pathologic Examination of the Right Eye.—The eye was fixed as in the previous case. Sections showed marked sclerosis of the retinal vessels, scattered small retinal hemorrhages, glaucomatous cupping of the optic disk, and peripheral anterior synechia. The retina and choroid were everywhere in situ. There was slight if any edema of the retina. The retinal ganglion cells had entirely disappeared. The lens was not cataractous, but there was a delicate pupillary membrane over it. The trephine wound was covered over with fibrous tissue, which was bulged outward. Serial cross-sections of the central retinal vessels showed complete obstruction of the central vein due to endophlebitis.

When the eye was opened after fixation, the vitreous was found separated from the retina, and the small amount of it remaining was confined to the anterior part of the eye. The fundus showed many pigment streaks on each side, similar to those in case 1. Four of the largest were on the nasal side, each of which began about 4 mm. behind the ora serrata. One, about 10 mm. in length, had a meridional direction; one, about 11 mm. long, ran upward and outward; one, about 12 mm. long, ran downward and, about 1 mm. from its end, the other streak began and continued for about 11 mm. These streaks appeared to be made up of dots, and were about 0.25 mm. in greatest thickness. With the loupe many smaller streaks could be seen. These were irregular or curved, and some of them branched.

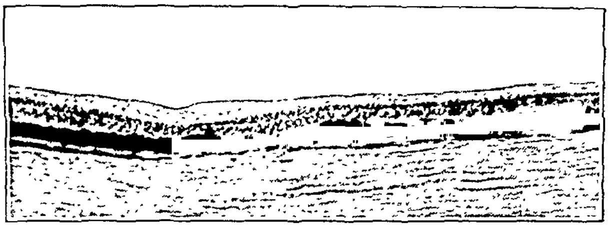

Fig. 3 (case 1).—Pigmented streak sectioned longitudinally; × 83.3.

Portions of the fundus containing streaks were excised and sectioned as in the previous case. For a short distance one of the finer streaks was successfully sectioned longitudinally. Microscopically, the streaks were essentially similar in appearance to those in case 1. In this case, however, occasionally a few of the cells in the central portion of a streak were partly or wholly free from pigment (fig. 4). In one instance a colloid excrescence was seen within a streak. This no doubt existed before the streak was formed. The retina was closely applied to the streaks as in case 1, and in all sections made of this eye the choroid was everywhere smoothly applied to the sclera and showed no indentations of the membrane of Bruch. In some areas within the regions of the streaks the pigment epithelium contained less pigment than elsewhere. Over the entire fundus the pigment epithelium showed numerous small colloid excrescences and also other changes which could not be certainly distinguished from those commonly seen in senile eyes.

COMMENT

In neither of these cases were the streaks seen ophthalmoscopically, but as seen with the naked eye and with the loupe, after the globes had been fixed in formaldehyde and opened,[6] the streaks were perfectly typical of those seen after separation of the choroid (fig. 1). The separation of the choroid had been observed ophthalmoscopically in case 2 but not in case 1. In case 1, however, two operations had been performed on the eye, the second one seven months prior to enucleation, so that there was an opportunity for the separation of the choroid to have occurred on two occa-

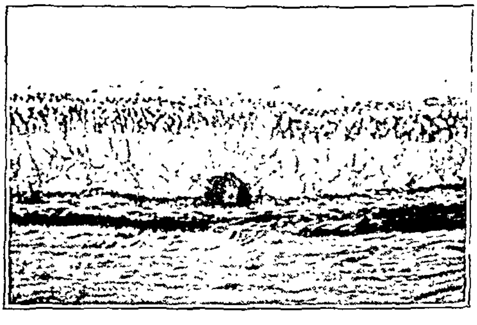

Fig. 4 (case 2).—Pigmented streak in cross-section. In its center is a large cell almost free from pigment; × 116.6.

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[6] As a fixative, solution of formaldehyde has certain disadvantages, but these cases illustrate one of its great advantages; namely, that it permits details in the fundus to be seen almost as well as they can be seen with the ophthalmoscope. After many other fixatives the streaks would have been invisible.

sions. Moreover, as Plocher has pointed out, the streaks are so characteristic that their occurrence is a certain indication that separation of the choroid has previously existed.

Microscopic examination of the streaks in these cases showed that they were situated between Bruch's membrane and the retina proper and were simply ridgelike thickenings of the pigment epithelium (figs. 2, 3 and 4). Occasionally the surface of the choroid beneath a streak was very slightly depressed. It is noteworthy that otherwise the choroid was perfectly smooth, and there was no obvious indication of its having been previously separated, other than the presence of the streaks.

Although apparently having no relation to the streaks, the fact may be worthy of mention here that the vitreous was found separated from the fundus in both of these cases. It is commonly believed that after the separation of the choroid has disappeared the vitreous returns to its normal volume, but these cases seem to show that this is not invariably true. It is possible, however, that the separation of the vitreous antedated the separation of the choroid in these cases.

The question now arises as to the mode of origin of the streaks. To obtain an answer to this, I have examined sections of the five eyes referred to in which separation of the choroid still existed. In one eye the separation was due to a recent perforating ulcer of the cornea; in the others the separation had occurred without an obvious cause.

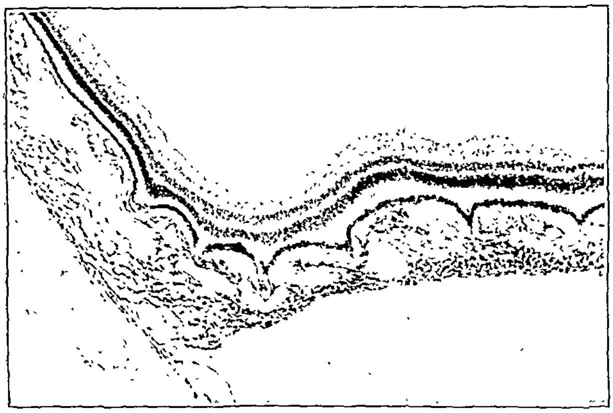

Fig. 5.—Section showing folds and creases involving surface of separated choroid in a case of perforating ulcer of the cornea; reduced from a photomicrograph with a magnification of 36 diameters.

In each of these eyes the choroid showed folds of various sizes, but they were more numerous in the eye with the perforating ulcer. The choroid and the retina together were involved in large wavelike folds, but only their inner surfaces showed small folds and creases. The small folds of the choroidal surface were rounded and inward, i. e., toward the retina, while the creases were between the folds and much sharper (fig. 5). As seen in the sections, the creases appeared as indentations, which involved chiefly the pigment epithelium, Bruch's membrane and the choriocapillaris. In some instances the pigment epithelium did not take part in the crease but bridged it over. In some of the larger creases the pigment epithelium was partly absent, partly depigmented or otherwise altered. In a few instances the epithelium on one side of a deep crease was in contact with that on the other side, as Fuchs described. In a few of the creases, the spaces within them were partly or completely filled with pigment cells evidently derived by proliferation of the original pigment epithelium (fig. 6). Probably in these the portions of the epithelium on each side of the creases had been for a time in contact and had fused together, and later the creases widened, thus causing the pigment cells to proliferate and fill the resulting spaces. From one of the eyes a segment of the separated choroid was excised and the retina peeled away from it. With a loupe, pigmented streaks could then be plainly seen on the choroidal surface (fig. 7). One streak branched into two at one end. The streaks were more numerous and much thinner than those seen in cases 1 and 2 (fig. 1), in which the choroid was in situ. The largest measured 0.02 mm. in width. A portion of the segment was then reembedded and the streaks were sectioned transversely. The sections showed definitely that the streaks were fine creases such as shown in figure 5.

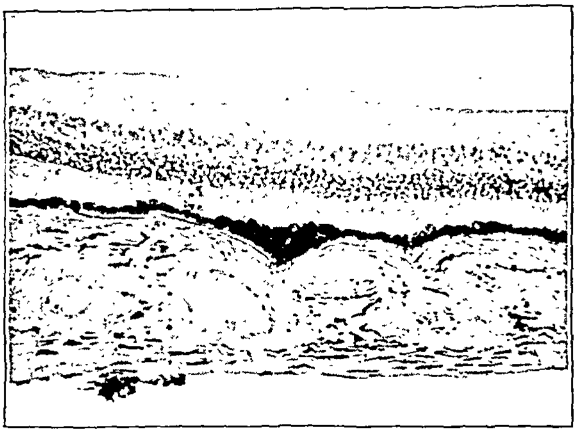

Fig. 6.—Section from same eye from which figure 5 was obtained, showing a crease filled with pigment cells. When the choroid becomes reapplied to the sclera, the pigment cells in such creases are lifted up so as to form pigmented streaks; × 111.

These fine pigmented streaks (creases) that exist while the choroid is still separated are not generally observed on ordinary ophthalmoscopic examination, no doubt because the separated choroid is poorly illuminated and appears dark. In a recent case, I was unable to see them when illuminated by the ophthalmoscope but could see them plainly, and also recognize folds in the choroid, when the latter was strongly transilluminated through the sclera.

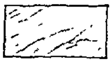

Fig. 7.—Segment of the separated choroid, from which the retina has been peeled, in a case of spontaneous separation of the choroid. The pigmented streaks are more numerous and much finer than those seen after the choroidal separation has subsided (fig. 1) and correspond to creases such as are shown in figures 5 and 6.

The explanation of the formation of the folds and creases is probably as follows: Separation of the choroid is due to the fact that the pressure in the vitreous chamber has become less, for a time, than that in the perichoroidal space. As the choroid separates it is, with the retina, for obvious reasons, forced into folds. The two structures are also at the same time compressed into a smaller surface area than they originally occupied. The outer parts of the choroid and retina, being relatively soft, yield to the compression usually without folding further, but the membrane of Bruch with the choriocapillaris and the inner surface of the retina, owing to their greater rigidity, are forced into rounded inward folds associated with outward creases.

From the foregoing observations the manner in which permanent pigmented streaks are formed as a result of separation of the choroid is now apparent. When the choroid is reapplied to the sclera, it is stretched to its original dimensions, so that all the folds and creases entirely disappear, leaving its surface smooth. As a result, the pigment cells that had accumulated in some of the creases are lifted up in the form of ridges on the surface of the choroid, visible with the ophthalmoscope as pigmented streaks. At the same time, the retina is smoothed out and is closely applied to the streaks.

The granular appearance of the streaks is due to the fact that the accumulations of pigment cells were not uniform throughout the creases, and the irregularities and breaks in the streaks correspond to similar defects in the preexistent creases.

The paler areas sometimes seen in the affected portion of the fundus are due to diminution in the amount of pigment in the pigment epithelium, resulting, no doubt, from the abnormal conditions of nutrition existing while the choroid was separated. The discrete pigment dots, separate from the streaks, are due to increased pigmentation and proliferation of the pigment epithelium in small areas, possibly corresponding to small pits which existed in the surface of the separated choroid.

The reason that the streaks do not occur near the optic disk is that the choroid is so firmly united with the sclera in this region that it seldom if ever becomes separated here.

As to the frequency of their occurrence, it might be supposed, judging by the scarcity of the recorded cases, that these permanent streaks are extremely unusual. But it seems to me, nevertheless, that they may be of relatively frequent occurrence and are often overlooked. I have seen them in very few cases but am sure that I have not always examined the fundus, especially its periphery, with sufficient thoroughness to detect them. It is certain, however, that they do not occur in every case in which there has been separation of the choroid. Obviously, they would not be formed in cases in which the separation was of short duration, for the observations here recorded clearly indicate that the extent and duration of the separation are determining factors in their formation.

As to the time when the pigmented streaks are formed, the cases recorded in the literature afford no exact information. Lindner observed the streaks in his second case three days after the separation had subsided. But in this case a trephine operation had been performed three months previous to the final operation, so that the streaks may have occurred then and have been overlooked. Plocher discovered streaks in his case two months after the separation was first noticed, and before it had entirely subsided. The actual observation, by means of a loupe, of pigmented streaks on the surface of the separated choroid in one of the present cases (fig. 7), as previously described, shows that streaks actually exist before the separation has subsided. These streaks, however, are much finer and more numerous than those seen in cases in which the choroid has become replaced (fig. 1), and sections made of them show that they are really fine creases (fig. 5). They are not generally recognized on ordinary ophthalmoscopic examination, but, as previously noted, in a recent case I was able to see them by transilluminating the separated choroid through the sclera. No doubt, when the separation subsides and the creases have been smoothed out, all the streaks disappear except those in which pigment cells have accumulated. The permanent streaks, actual ridges of pigment epithelium, must certainly appear soon after the choroid has been reapplied to the sclera.

In a previous communication before this section, I[7] demonstrated the nature and origin of angioid streaks, showing that the latter are corrugations of the inner surface of the choroid, including the pigment epithelium, resulting from fibrosis of the outer layers of the choroid. From the observations that I have recorded, it can now be regarded as certain that the pigmented streaks resulting from separation of the choroid are entirely different in nature and origin from angioid streaks.

CONCLUSIONS

From macroscopic and microscopic studies of two eyes showing pigmented streaks in the fundus, and of five eyes in which separation of the choroid still existed, the following conclusions are drawn:

Pigmented streaks in the fundus resulting from separation of the choroid are entirely different in nature and origin from angioid streaks.

Very fine pigmented streaks exist while the choroid is still separated. These are furrow-like creases in the surface of the choroid. They are not usually visible on ordinary ophthalmoscopic examination but they may be seen, in some cases at least, by transilluminating the separated choroid through the sclera. All these creases disappear as such when the separation subsides.

The permanent pigmented streaks, seen after the separation has subsided, are ridgelike thickenings of the pigment epithelium.

The pigment cells composing the permanent streaks originally accumulate within some of the furrow-like creases that exist while the choroid is separated. When the choroid becomes reapplied to the sclera and these creases are smoothed out, the accumulations of pigment cells are elevated, thus giving the appearance of streaks.

82 Commonwealth Avenue.

ABSTRACT OF DISCUSSION

Dr. T. B. Holloway, Philadelphia: As Dr. Verhoeff has stated, the recorded case histories of pigmentation after detachment of the choroid are rare, and it is gratifying that these cases should have come under his observation and that his observations are available for this section. The only probable case of this character that I have seen was in an eye observed at the former Polyclinic Hospital, fourteen or fifteen years ago, and at the time the significance of the pigmentation was not understood. In character it corresponded to the type under discussion. It was not until I had occasion to review the literature concerning angioid streaks and saw references to this type of pigmentation developing after choroidal detachment that the case mentioned was recalled. Naturally, those who have described these cases have pointed out those characteristics that differentiate them from angioid streaks, or, as Verhoeff has suggested, fibrosis chorioideae corrugans. Nevertheless, it is interesting to note that each of these types of linear pigmentation has to do with the pigment epithelium, the one doubtless of vascular origin, with fibrosis, as the author has shown, as the contributing factor, while in the other case it is brought about as the result of what might be regarded as a mechanical sequence of a detached choroid. While it has been shown that these streaks may be visible with the ophthalmoscope within a few days after the choroid has become detached, Dr. Verhoeff has pointed out the more important fact that by the use of transillumination they may be observed during the period of detachment. This simply means that in a case of choroidal detachment the eye must be examined by transillumination as soon as it is permissible. If the author's belief in regard to the character of the cases with which he was dealing is accepted, there is little use to speculate as to theories when confronted by definite pathologic observations.

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[7] Verhoeff, F. H.: The Nature and Pathogenesis of Angioid Streaks in the Ocular Fundus, Tr. Sect. Ophth. A. M. A., 1928, p. 243.

Dr. E. V. L. Brown, Chicago: One characteristic of the detachment streaks was not sufficiently stressed or discussed by Dr. Verhoeff, although definitely present and described in each of his cases; namely, their predominantly longitudinal and circular course. It seems to have been present in practically all other reported cases. There are two kinds of pigment streaks in the fundus, the angioid streaks and streaks due to detachment of the choroid, both due to changes in the choroid, the pathology of each of which Dr. Verhoeff has definitely established. There is a third kind which apparently is rare, or at least concerning which little has been written; namely, the kind due to arteriosclerosis of the choroidal vessels. This was first described clinically in two cases (and anatomically in one of the cases) by Siegrist in 1899. I would suggest a new explanation of these streaks; namely, that the streak or ridge formation is possibly due to inward pressure of certain larger choroidal vessels against the pigment epithelium. This pressure would bend the lamina basalis inward in a weakly convex curve just over the course of the vessel. Siegrist specifically notes that both ophthalmoscopically and anatomically there were no streaks over the completely sclerosed vessels; perhaps complete hardening took place in arteries only or in small veins and thus made no bending inward of the lamina basalis. His drawing shows only small vessels sclerosed, only larger ones with pigment. Possibly these larger vessel walls first become relaxed as described by Thoma decades ago, then distended, and press gently but constantly against the lamina and epithelium, like a tight shoe on a corn, and make the epithelium proliferate just along the line of pressure.

Dr. F. H. Verhoeff, Boston: I am aware, of course, that pigmented streaks sometimes result from separation of the retina, and I have seen them in cases of high myopia and other conditions; but such streaks occur so rarely and are so scanty when they do occur that they do not properly come within the scope of my paper. With the streaks described by Siegrist, however, I was unacquainted until his paper and that of Koeppl were called to my attention by Dr. Brown a few days ago. These streaks have no relation to postoperative separation of the choroid, but they are pertinent to my paper because they are histologically similar to the streaks investigated by me. Siegrist could offer no satisfactory explanation for their occurrence. Three possible explanations in addition to those offered by him suggest themselves to me: First, that they are due to antecedent, spontaneous separation of the choroid. Against this are the facts that they appear close to the optic disk, where separation of the choroid almost never takes place; that they follow the course of the choroidal vessels and have a definitely beaded appearance. Second, that they result from previous creases in the choroid. Against this is the difficulty of explaining how sclerosis of the choroidal vessels could cause such creases. Creases are shown in Siegrist's illustration, but they are probably artefacts dependent on postmortem changes. Third, that the streaks are caused by pulsation of certain choroidal vessels. When there is marked sclerosis of the choroidal vessels, it is reasonable to assume that for a time some of the latter may pulsate to an unusual degree and that the pulsation may locally stimulate the pigment epithelium to proliferate. Siegrist found, both ophthalmoscopically and microscopically, that the streaks occurred only in relation with thin-walled vessels. Against this explanation are the facts that such streaks are beaded and occur very rarely, but nevertheless at present it seems to me the most probable one. In regard to Dr. Holloway's comment about overlooking streaks, in the case in which I found creases I later had the patient come back and then found three large streaks in the lower inner quadrant, three in the upper outer quadrant, and a number of small ones. These streaks had not been seen on several other visits to the clinic, because a special effort had not been made to find them.

THE PREVENTION OF GOITER IN DETROIT AND CLEVELAND

O. P. KIMBALL, M.D.
CLEVELAND

The comparative study of the prevention of goiter in Detroit and in Cleveland demonstrates how quickly any community can completely eradicate endemic goiter when there is a unity of all the forces that direct its public health. Without this unity, public health cannot take care of itself. The safety of present methods of prevention of goiter also is considered.

Detroit and Cleveland are practically the same size, and as far as is known the natural conditions and the factors determining endemic goiter are the same. I have been intimately connected with the work in the two cities. In Detroit this preventive measure had the leadership and cooperation of the state department of Health, the city department of health, the school board, school physicians and the medical profession. In Cleveland there has been no unity of thought or action.

The Michigan State Department of Health, after surveys determining the incidence of goiter and the iodine content in the various water supplies throughout the state, early in 1924 outlined a definite program for goiter prevention. They decided on the use of iodized salt. A conference with the salt manufacturers and later with the wholesale grocery men was held, resulting in a definite cooperative plan that only iodized salt would be used as food in Michigan. Iodides have always been expensive, costing around $3 a pound even when bought in large quantities. To prevent an increase in the cost of salt, which might be used as an argument against the use of iodized salt, the manufacturers agreed to stand half of the increase in the cost of production, and the wholesale grocers the other half, thereby keeping the cost to the consumer the same as that of ordinary table salt. It was further agreed that the state department of health would do all the educative work, making advertising by the salt producers unnecessary. Under this plan iodized salt was put on the market throughout the state of Michigan in May, 1924.

A survey had been made in the Detroit schools in the winter of 1924, so that the incidence of goiter just preceding this prophylactic movement was fairly well established. This survey was outlined and directed by me with the assistance of two physicians who had worked with me, thus insuring uniform data. One of these physicians, Dr. Gudakunst, has been director of health education in the schools and has continuously emphasized the prevention of goiter. Further, the Detroit school board ordered the purchasing department to use only iodized salt in their cafeterias, which feed 50,000 children daily.

In Ohio the state department of health became interested and in 1925 appointed me as consultant on goiter to the state health department, for the purpose of carrying out a survey in various sections to determine the incidence of goiter and institute a definite program of prophylaxis. To this end in the fall of 1925 all the children in two counties in the southern section of the state, in two in the central section and two counties along the lake were carefully examined. Altogether, 60,000 school children were examined for thyroid enlargement. We planned to concentrate the efforts of the state department of health in these counties, expecting to be able to control the situation so that only iodized salt would be used. Then

a careful reexamination would be made at least every other year to determine the results.

In the spring of 1926, active opposition to the prophylactic measures began. An article by Hartsock[1] emphasized the great dangers of hyperthyroidism from the use of iodized salt. The state department of health almost immediately withdrew from its active campaign and only a partial resurvey was made in 1926. No further study was made by the state department of health.

In Cleveland the director of health service in the public schools has not had a concrete plan for the prevention of goiter; hence no unity of opinion on this point could prevail among the school physicians and nurses. Neither has there been a unanimity of opinion among the members of the medical profession of Cleveland. Some of the leading goiter surgeons have persistently and continuously opposed the use of iodized salt on the ground that it might cause hyperthyroidism. This theoretical possibility was stressed with such an effect that in this community it has been *generally accepted that the continued use of iodized salt* is actually dangerous. In my survey through the schools last year I found that most of the principals, teachers, nurses and school physicians were working under the impression that iodized salt was not a safe method of prophylaxis. This contrast in attitudes toward the general use of iodized salt for the prevention of goiter in Detroit and in Cleveland has created an ideal basis for this comparative study.

As previously stated, a survey was made in the Detroit schools early in 1924. This included both boys and girls from the first grade through high school. It was found that 36 per cent had a definite thyroid enlargement. No attempt was made to differentiate accurately the congenital adenomas from the active hyperplastic type, but I felt sure at the time that the incidence of congenital adenomas in this survey was approximately the same as in other sections of Michigan, where from 10 to 12 per cent was found. In the Cleveland schools no extensive goiter study was ever made.

In the fall of 1924, a goiter survey was made through several of the parochial schools. I myself made this survey for the city health department in order to start prophylaxis through these schools. All the children in one primary, one intermediate and one high school, approximately 1,200 children, were examined, a total incidence of goiter of 34 per cent being found.

Table 1.—*Comparison of Incidence of Goiter in Schoolchildren of Detroit and of Cleveland*

	Total Incidence of Goiter in Regular Schools, 1924	Total Incidence of Goiter in Special Schools, 1930-1931	Hyperplastic or Iodine Deficiency Goiter in Special Schools, 1930-1931	Number of Examinations
Detroit	36%	12%	0.3%	5,075
Cleveland	34%	30%	18.0%	3,175

During the school year 1930 and 1931 the Detroit school physicians examined more than 100,000 children from the first grade through high school. They reported that only 2.1 per cent showed a[illegible] enlargement of the thyroid, emphasizing that m[illegible]ce enlargements were small discrete a[illegible] genital goiter. That is what Dr. Marinus and I found in the examination of 5,075 children in the special schools of Detroit during the last two years. The total incidence of goiter was 12 per cent, but 97 per cent of these were only discrete adenomas or a persistent thyroglossal stalk (congenital goiter), with the remainder of the gland normal. We studied them for the presence of hyperplasia or a uniform colloid enlargement, which condition, we feel, means an iodine deficiency. Of this type (iodine deficiency goiter) we found only fifteen cases, or 0.3 per cent. We kept this differentiation constantly in mind: (*a*) congenital goiter with normal function and chemistry; (*b*) hyperplastic or iodine deficiency goiter. There was no thought of creating a new classification. These descriptive terms were used only to express our feeling as to the iodine deficiency, either at the time of the examination (hyperplasia) or a recent condition (colloid).

Table 2.—*Yearly Report of Incidence of Goiter in Detroit* *

	1924	1926	1927	1928	1929	1930	1931
Incidence of goiter	36%	9.7%	7.7%	7.2%	5.2%	3.1%	2.1%
Number of examinations	3,000†	69,805	78,085	115,535	107,853	141,366	114,969

* From Detroit City Health: School Health Service, Annual Reports, vol. 13-14.

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It is very evident that the general use of iodized salt throughout Michigan has decreased endemic goiter to a minimum. I feel that sufficient time has elapsed since the origin of this prophylactic measure so that we can tell from the data whether or not the general and continuous use of iodized salt is likely to induce hyperthyroidism. The discussion of this work by two of Detroit's surgeons answers this question quite emphatically:

Dr. H. K. Shawan, surgeon at Grace Hospital and Receiving Hospital, states that there has been a marked and continuous drop in the number of toxic goiters seen in these two hospitals. His data from Grace Hospital were available:

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The rapid disappearance of endemic goiter among school children throughout Michigan is one of the outstanding achievements in preventive medicine.

1422 Euclid Avenue.

A SIMPLER TECHNIC FOR PROMOTING EPITHELIZATION AND PROTECTING SKIN GRAFTS *

ADALBERT G. BETTMAN, M.D.
Clinical Associate in Surgery, University of Oregon Medical School
PORTLAND, ORE.

The literature is replete with articles on the healing of wounds, and I therefore hesitate to present a new one. However, after having given this method an extensive trial for a period of over eight years and having had it used during this period by colleagues who without exception returned enthusiastic reports of results, I have decided to present it to the profession.

When the acute stage of a burn is past, there follows a long and tedious convalescence with the resultant adhesions, contractions and heavy bands of scar tissue. A not unusual picture is a red, granulating, weeping, infected, painful area healing sluggishly with overabundant granulations and absence of epithelium. The treatment of this type of lesion taxes the ingenuity of the attending surgeon. Messy ointments are applied spread on gauze, or lotions are used. Changing dressings is extremely painful and not infrequently requires a general anesthetic. The method to be presented simplifies all these factors and is applicable to all lesions which present loss of epithelium, whether the result of burns, traumatisms, x-ray and radium burns, or ulcerations of various sorts.

All treatments applied to surface wounds are aimed to promote epithelization. The rate of growth of epithelium is increased relatively easily but, as the epithelium tends to advance, its progress is retarded or prevented by infection. The idea occurred to me to incorporate with the growth-stimulating factor some substance which would tend to limit or remove the infection. I appreciate the difficulty of chemical sterilization of infected areas but believe that, in certain conditions, antiseptics have a place.

It was at once recognized that to meet the indications the antiseptic must be of considerable potency, that it must be nonirritating, that it must not injure healing tissue, and that it must be effective in the strength used; also, that it must not be incompatible with the growth-stimulating element. Another important point was that the finished product must be susceptible of being applied in such a manner that the secretions may be carried away quickly.

A formula and a technic were worked out, prepared and tried. They gave results far superior to anything that had hitherto been used. However, not being

a careful reexamination would be made at least every other year to determine the results.

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[4] Kimball, O. P., and Marinus, J. C.: Relation of Endemic Goiter to Mental Deficiency, Ann. Int. Med. 4: 569 (Dec.) 1930.

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The gradual decrease in the incidence of goiter in the Detroit schools is shown by the reports of the school physicians. The first examination, 1923 and 1924, showed an incidence of 36 per cent. The survey in the spring of 1926 after two years of prophylaxis showed only 9.7 per cent. The decrease was so striking that I was asked to recheck this survey. It was found, however, that this incidence (9.7) was as accurate as could be obtained. This yearly report from Detroit is shown in table 2.

I have no comparable reports by the Cleveland school physicians. This year a partial survey was made: 1,600 girls, aged 13 and 14, were examined, and 33 per cent had definite thyroid enlargement. An examination of 500 girls, aged 17 and 18, showed 34 per cent with goiter.

In an effort to learn to what extent iodized salt is being used in Cleveland, the assistance of six schools in different sections of the city was enlisted. In 5,438 homes reporting, 1,587 stated that they used iodized salt, either continuously or at times, and 3,860 stated that they had never used iodized salt. From this study it was found that only 31 per cent of the homes in Cleveland have used iodized salt.

As a further check on this prophylactic measure, the department of chemistry of the Cleveland Health Department analyzed for iodine content all the leading brands of iodized salt being sold there. This study was carried out during March, April and May of this year. Of eight different brands of iodized salt, three did not contain any iodine. These were leading brands in this city, and it is plainly seen that approximately 50 per cent of the iodized salt being sold in Cleveland contained no iodine. This reduces the actual prophylaxis of goiter to about 15 per cent of the population. It is only right that I state here that all the nationally advertised brands of iodized salt contained exactly the amount stated on the label. I am pleased to report that the two salt companies which were responsible for the three brands of salt containing no iodine have agreed to make their products conform to the label, and recent examinations show that they are doing so.

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Dr. Elliot Cutler of Cleveland gave me the data from Lakeside Hospital, which are shown in table 3. The number here includes all patients presenting toxic adenoma and exophthalmic goiter who were admitted to the hospital from 1925 to 1930, inclusive.

Table 3.—*Cases of Goiter at the Lakeside Hospital (1925-1930)*

	Toxic Goiters	Total Number of Surgical Operations
1925	98	1,093
1926	176	1,255
1927	174	1,322
1928	133	1,377
1929	123	1,433
1930	114	1,460

This assurance from the surgical data merely emphasizes my observations,[3] in 1928, that "The prevention of goiter as it has been carried out in Michigan is very efficient and entirely safe."

Since this comparison is only a part of a survey of feeblemindedness in the two cities, I again point out that, by the prevention of endemic goiter, Michigan has eliminated from her schools in the future thousands of cases of feeblemindedness (cretinoid type),[4] which have in the past and would in the future result from endemic goiter.

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ADALBERT G. BETTMAN, M.D.
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The literature is replete with articles on the healing of wounds, and I therefore hesitate to present a new one. However, after having given this method an extensive trial for a period of over eight years and having had it used during this period by colleagues who without exception returned enthusiastic reports of results, I have decided to present it to the profession.

When the acute stage of a burn is past, there follows a long and tedious convalescence with the resultant adhesions, contractions and heavy bands of scar tissue. A not unusual picture is a red, granulating, weeping, infected, painful area healing sluggishly with overabundant granulations and absence of epithelium. The treatment of this type of lesion taxes the ingenuity of the attending surgeon. Messy ointments are applied spread on gauze, or lotions are used. Changing dressings is extremely painful and not infrequently requires a general anesthetic. The method to be presented simplifies all these factors and is applicable to all lesions which present loss of epithelium, whether the result of burns, traumatisms, x-ray and radium burns, or ulcerations of various sorts.

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A formula and a technic were worked out, prepared and tried. They gave results far superior to anything that had hitherto been used. However, not being satisfied with these observations, I gave the formula to other surgeons and asked for unbiased reports. The reports were all enthusiastically commendatory, and it is after a test period of over eight years that the formula and technic are now to be published.

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[3] Kimball, O. P.: Efficiency and Safety of Prevention of Goiter, J. A. M. A. **91**: 454 (Aug. 18) 1928.

[4] Kimball, O. P., and Marinus, J. C: Relation of Endemic Goiter to Mental Deficiency, Ann. Int. Med. 4: 569 (Dec.) 1930

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The technic of application here described is the means of securing the maximum result by the use of the formula.

The formula, which has been called oxyquinoline sulphate scarlet R ointment, is as follows:

		Gm. or Cc.		
℞	Oxyquinoline sulphate.............		6	gr. x
	Chlorbutanol (choretone)......... ..	2	4	gr. xl
	Liquid petrolatum..................	4	0	℥ i
	Scarlet R ointment, 5 per cent.....	120		℥ iv

When 10 per cent scarlet R ointment is used, take 2 ounces and petrolatum, 2 ounces.

The oxyquinoline sulphate and the chlorbutanol are ground separately into fine powders and then mixed separately with portions of the liquid petrolatum. All the ingredients are then made into a red ointment. The finished ointment is heated until fluid, and rolled gauze bandages, 32 by 44 mesh, or coarser, are immersed in the hot ointment until the entire bandage is thoroughly impregnated, until all bubbling has ceased. When cool, it is ready for use. The finished product has been called oxyquinoline sulphate scarlet R gauze.

The formula herewith presented will impregnate completely three 10-yard gauze bandages, 2 inches wide, or six, 1 inch wide, provided it is heated in a small vessel; for example, an aluminum measuring cup such as is ordinarily used in the kitchen.

When a bandage has been immersed in the ointment as described, the mesh of the outer layer or two is covered completely and these layers are discarded. The warp and woof of the rolled gauze are completely impregnated with the red ointment, but the interstices are open. A bandage so prepared will keep indefinitely if contamination is avoided.

The rationale of the ingredients is easily given.

Oxyquinoline sulphate is a definite chemical compound. It is a yellow crystalline powder, a powerful antiseptic, nontoxic, and it does not destroy growing cells. It does not coagulate albumin or injure mucous membranes. In this ointment its strength is as 1 to 200.

For over twenty years I have applied oxyquinoline sulphate powder to wounds by means of cotton tipped applicators wet with alcohol and have found it a most valuable application for preventing and overcoming early or potential infections.

Chlorbutanol, trichlortertiarybutyl alcohol, is a definite chemical compound having marked local anesthetic properties and is mildly antiseptic.

Scarlet R ointment containing 5 per cent Scarlet R Medicinal Biebrich is definitely stimulating to the epithelium and promotes its growth. This dye is a definite chemical substance, aminoazotolueneazobetanaphthol. This preparation has enjoyed wide use for many years, but its value is greatly increased by the formula here presented.

Dimazon, diacetylaminoazotoluene, has been used in place of the scarlet R, but the results seemed more satisfactory with the red ointment.

The application of oxyquinoline scarlet R gauze to the wound is very simple. Excess secretions are removed by gently but firmly pressing with dry gauze. When cotton is used on wounds, small bits adhere. Short pieces of oxyquinoline scarlet R gauze are cut and laid directly on the wound, completely covering the entire surface with but a single layer. Overlapping is reduced to a minimum. Dry gauze is then applied in sufficient thickness to carry away the secretions and to protect the wound. A bandage keeps the red gauze in close contact with every part of the wound surface.

The dressings are changed every second to fifth day, care being taken that the new epithelium is not disturbed. The dressings usually come away readily. When they do not, which is rare, they are left until the next dressing and are never pulled off. Frequently the red gauze is left in place until complete epithelization has occurred.

Infection slows up the normal rate of wound healing, and when infection is eliminated healing goes on with surprising rapidity. By the use of this method the healing time is greatly shortened, resulting in soft scars with less tendency to bind and, therefore, a minimum of deformity. Healing is rapid and the wound is clean throughout.

When ointment is applied to gauze as one spreads butter on bread, the mesh is closed in the center by a thick layer and the edges are devoid of ointment. The application of such a dressing holds the secretions in at the center and allows the dry gauze at the periphery to stick to the wound. When secretions are held in contact with a wound, the tissues beneath are broken down. When secretions are carried away, this breaking down does not occur.

Lest it be misunderstood, let it be distinctly stated that the formula and method here described are not a primary treatment for burns. The best results as first treatment of burns are obtained by using tannic acid and forced fluids. The treatment here described is for the healing of the resulting ulcerated surfaces.

An important use of this dressing is in preparing wound surfaces for skin grafting. The application of oxyquinoline scarlet R gauze will rapidly clean up infected granulations and make them ready for Thiersch or other skin grafts. The application of this gauze for three or four days is often sufficient. Following Thiersch or Reverdin grafting, the gauze is applied over the grafts, and the dressing is not changed for four or five days or longer. Rapid healing minimizes the formation of scar tissue between grafts. Chronic ulcers of the leg, x-ray and radium burns, and other sluggish processes respond readily.

When oxyquinoline scarlet R gauze is used, skin grafts will take very frequently where otherwise they would not. It is during the waiting period while the denuded area is being made ready for skin grafting that scar tissue with its resulting contractions is increasing. By the use of this method, skin grafting can be done early and disfiguring contractions and webbings prevented.

Dressings are changed less frequently when oxyquinoline scarlet R gauze is used. Every fourth, fifth or sixth day the entire dressing is removed, while every second to fourth day the outer dressings may be changed. By replacing the outer dressings as necessary, the mesh in the oxyquinoline scarlet R gauze is kept open, and the new dressings carry away the drainage.

The application of a very thin layer of the ointment is made occasionally directly to healing incisions and is an aid to the production of invisible scars.

A boy, aged 9 years, received an extensive burn extending from the umbilicus to the left ankle. The entire skin surface sloughed, leaving an ugly, weeping wound. The immediate treatment with tannic acid and forced fluids was satisfactory, but under several later treatments he was most uncomfortable and required frequent narcotic medication. Within thirty minutes after the application of the oxyquinoline scarlet R gauze, he went to sleep without a narcotic.

An elderly man had a chronic ulcer of the leg, which resisted healing, although many types of treatment had been used. Under the application of oxyquinoline scarlet R gauze, the lesion was healed in two weeks.

An elderly woman received an x-ray burn involving an area 7 by 4 inches. Before I saw the patient, various treatments, including skin grafting, were tried over a period of eight months, without lessening the size of the wound in the slightest degree. The application of this gauze to the area healed it completely. The healing was progressive from the very start, a slow advance being noticeable from day to day. The resulting scar is soft and pliable, and there are no heavy bands and no contraction.

This report is made with confidence that those who use oxyquinoline scarlet R gauze as herein described will reap the satisfaction which I and those of my colleagues who have been using it have had.

629 Medical Arts Building.

THE CAUSE AND PREVENTION OF RADIODERMATITIS [*]

H. H. HAZEN, M.D.
WASHINGTON, D. C.

This study of 111 cases of radiodermatitis following the application of either x-rays or radium is based on patients seen in private practice. The cases are consecutive but include only those in which the total dosage can be estimated either absolutely or with a very fair degree of accuracy. Cases occurring as the result of high voltage therapy for malignant diseases of the breast, thorax or abdomen are not included, nor are instances in which a few telangiectases have appeared in a limited area following the treatment of skin cancer; nor is reference made to fibrosis of the lungs, or intestinal injury as the result of intensive irradiation.

Of these 111 cases, 40 occurred in men and 71 in women. Three resulted from the taking of roentgenograms; thirteen from high voltage therapy; seven occurred in roentgenologists; thirteen were from treatments received in beauty shops, and the remainder, or seventy-five, from superficial therapy. Eight cases were the result of high voltage therapy by dermatologists and fifty-eight of low voltage therapy by dermatologists, while five were from high voltage therapy by roentgenologists and seventeen from low voltage therapy by roentgenologists. Table 1 shows the years when treatment responsible for the radiodermatitis was received.

Table 1.—*Years During Which Treatment Resulting in Radiodermatitis Was Received*

Years	Number of Cases
1910 to 1912	8
1913 to 1915	17
1916 to 1918	21
1919 to 1921	18
1922 to 1924	11
1925 to 1927	19
1928 to 1929	17

When it is remembered that thirteen patients were damaged in beauty shops between 1927 and 1929, it will be noted that the number of cases of radiodermatitis attributable to physicians is decreasing. This is probably a just estimate, as the majority of operators know better the limitations of radiotherapy. Of these 111 cases, 7 were from radium and the remainder from x-rays.

Table 2.—*Location of Radiodermatitis*

Part of Body Affected	Number of Instances
Face	38
Neck	15
Hands	20
Feet	8
Body	13
Arms or legs	12
Scalp	11
Scrotum	3
Perineum	4
Gums	7

There has been a prevailing impression that radiodermatitis is usually manifest by the end of the first year and that it invariably appears before the end of the second year. In this series of cases, ninety-seven patients showed signs of injury before the expiration of twelve months, and an additional eight before two years had elapsed. Four cases showed nothing for three years, and in two instances the first signs of trouble appeared after forty-eight months. There are a few cases on record in which the appearance of telangiectasis has been delayed even beyond this period.

Table 3.—*Character of Injuries*

Type of Injury	Number of Instances
Depilation	6
Permanently dry hair	5
Localized dryness	2
Atrophy and wrinkling	6
Telangiectases	78
Keratoses	14
Acute second degree burns	5
Third degree ulcers	14
Injury to gums	7
Sclerosis of muscles	1
Cancer	4

The location of the radiodermatitis is shown in table 2.

It should be noted that many patients showed a radiodermatitis in several areas, which fact is responsible for the divergence in figures.

The character of the injuries is shown in table 3.

Of the third degree lesions, nine were due to treatment received from roentgenologists and five from dermatologists.

Regarding the character of the lesions, there is space for only a few words. Five cases of permanently dry hair occurred in children from an institution where ringworm had been epidemic for years. These children were depilated either four or five times, and two years after the last depilation the hair was rather scanty, thin, dry and partially white. Three of the cases of depilation were the result of roentgenography and the other three resulted from therapy. The injury to gums has already been discussed by me[1] in an article, "Injuries Resulting from Irradiation in Beauty Shops."

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[*] Read before the Section on Dermatology and Syphilology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

The conditions for which x-rays were given are listed in table 4.

Table 4.—*Conditions for Which Treatment Was Given*

Condition Requiring Treatment	Number of Cases
Acne	16
Superfluous hair	14
Psoriasis	4
Pruritus ani	4
Dermatophytosis	9
Tinea tonsurans	7
Tinea cruris	3
Warts	8
Dermatitis venenata	4
Lichen planus	1
Cancer	4
Keloid	5
Nevi	3
Lupus vulgaris	3
Tuberculous glands	4
Thyroid hypersecretion	5
Superficial nodules	2
Sarcoma	2
Excessive menstruation	2

Table 5 shows the location of the third degree burns, and the condition for which treatment was given.

Table 5.—*Third Degree Burns*

Condition Requiring Treatment	Number of Cases
Lupus vulgaris of face	2
Pruritus ani	2
Dermatophytosis of foot	2
Wart on hand	1
Cancer of ear	1 (radium)
Sarcoma of jaw	1
Sarcoma of axilla	1
Excessive menstruation	2

The location and primary conditions of the cases which resulted in serious keratoses are listed in table 6.

Table 6.—*Cases Resulting in Serious Keratoses*

Primary Condition	Number of Cases
Superfluous hair of face	1
Superfluous hair of legs	1
Psoriasis of feet	1
Psoriasis of legs	1
Dermatophytosis of foot	1
Wart on hand	1
Linear nevus of hand	1
Lupus vulgaris of face	1
Dermatitis of face	1
Industrial exposure in roentgenologists	5

It is to be noted that many patients suffering from comparatively benign conditions were among those who were most seriously damaged.

The patients mentioned in the foregoing lists met with the fates shown in table 7.

Of the 111 patients, 37 had been treated with rays filtered through 1 to 3 mm. of aluminum, and the remainder with unfiltered rays. These figures are of little value, as they fail to show the total number of patients treated with either filtered or unfiltered rays in whom no permanent injury developed. The attempt was made to learn whether various voltages had the slightest effect. So far as could be deduced in this series of cases, there was no difference in results of patients treated with a peak voltage of 80 or of 130 kilovolts.

It has also been stated that the face, neck, flexor surface of the arms, and the skin covering the joints are unusually susceptible. In seven patients the same dosage was given to the skin of the face, and either to the shoulders, arms or legs; the resultant injuries are practically the same in all places, which would tend to show that there is comparatively little difference in susceptibility of the skin in various areas. However, it should be noted that telangiectases did not develop on the back of the hands unless the total amount of rays received was in excess of 6 units, so it is evident that this portion of the body is unusually resistant.

In twelve persons, telangiectases developed without any preexistent erythema. But a few years ago the teaching was that such an event could never take place without an erythema following treatment. However, if one will recall that many roentgenologists have had telangiectases which developed from the cumulative effect of many tiny doses, the falsity of this teaching should be apparent. All twelve of these patients had been under close observation by competent men, and an erythema could scarcely have escaped attention. Two of the patients had received a total dosage of only 3 units; two had received a dosage of 4 units; four a dosage of 5 units, and the remainder a dosage between 5 and 6 units. It is worthy of comment that the patients in whom dilated vessels developed after a total dosage of but 3 units were both women with excessively dry skin.

Table 7.—*End-Results of Roentgenography and Roentgenotherapy in Some Cases*

Result	Number of Cases
Death from cancer of face	1
Amputation of arm	1
Amputation of leg	1
Amputation of fingers	3
Extensive skin graft to hand	1
Extensive skin graft to feet	2
Extensive skin graft to body	2

While this series of cases is comparatively small, it would seem obvious that a total dosage of 2½ units is all that can be safely administered to a patient with a very dry skin, and a maximum of 4 units to a patient with a normal skin. This is an important observation, as it tends to establish the total dosage that can be administered to any one patient over a period of years.

As patients can stand only a definite total amount of irradiation, it is absolutely incumbent on the radiologist to learn just what dosage has previously been received. Likewise, in estimating the total dosage which has been applied to the face, the number of dental roentgenograms should also be taken into consideration. When a patient has had from fifteen to twenty roentgenograms of the teeth taken, the total amount of x-rays received is not small.

Excluding the patients who were damaged in beauty shops, it was found that twenty-eight patients received their injuries from one heavy dose of from 1 to 3 units; sequelae developed in fifty-one after repeated heavy doses of from one-half unit up, and eighteen showed radiodermatitis after fractional treatments in which no dose was over one-fourth unit.

Another important point is that only seven patients showed sequelae when the diameter of the area treated was less than 1 inch (2.5 cm.). It is a well known fact that an area not more than one-fourth inch (0.6 cm.) in diameter will stand a total amount of treatment that would utterly destroy tissue in an area of 2 or more inches. To determine how much irradiation small areas will stand, a survey has been made of 250 cases each of cancer and of warts, and the following are the facts for unfiltered therapy:

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[1] Hazen, H. H.: Am. J. Roentgenol. 23: 409 (April) 1930.

Area, one-fourth inch diameter: A single dose of 3 units or a total dosage of 9 units, provided that no irritating substances are used or that subsequent dosage is not repeated in the presence of an erythema, will cause a little atrophy but no other sequelae.

Area, one-half inch in diameter: The results are the same as noted in the preceding paragraph, except that telangiectases will appear in 10 per cent of the cases.

Area, 1 inch in diameter: Single doses of 2 units, or a total of 6 or 7 units, will result in some atrophy and a few telangiectases in 15 per cent of all patients.

Area, 2 inches in diameter: Single doses of 2 units, or a total of 6 units, will show considerable atrophy and some telangiectases in nearly all cases.

In the light of our present knowledge, certain of the patients were unsuitable for irradiation. In this group should be placed thirteen patients with hypertrichosis who were injured in beauty shops; two patients with hypertrichosis of the nucha; three with tinea cruris involving the scrotum; one with primrose dermatitis; three with large pigmented nevi, and two with lupus vulgaris and extensive scar formation in which the pathologic changes already closely resembled those found in a chronic radiodermatitis. In addition, the patients with keloids should have been permitted a long interval between treatments to allow for late shrinkage of the lesions, and the patients presenting tinea tonsurans should not have been depilated more than three times.

Regarding the causes of radiodermatitis it is probable that the list shown in table 8 is as accurate as possible at the present time.

Table 8.—*Causes of Radiodermatitis*

Causative Factors	Number of Instances
Handling radium with fingers	1
Meter out of order	9
Meter maladjusted	1
Omission of filter	1
Patient went to sleep and did not remove radium	1
Too many epilations (tinea tonsurans)	5
Movement of patient with tinea tonsurans	1
Timer stopped	1
Deficient timer	1
Too large areas for heavy dosage	5
Irritant drugs used by patients	5
Patients taking treatments from several physicians	5
No filter on radium	4
Protection slipped	1
Too many or too heavy treatments	69

It is probable that strict observation of the following points would eliminate many cases of radiodermatitis:

1. Patients should be carefully selected. Pigmented nevi should be treated with x-rays or radium only after careful consideration, as destructive doses are necessary.[2] The mild type of acne should be treated with x-rays only as the last resort; patients troubled with constipation or young patients should not be treated. Pruritus ani should be treated with irradiation only when all other methods have failed. Lupus vulgaris with extensive scarring already has pathologic manifestations similar to radiodermatitis and hence should be treated with the utmost caution. Dermatophytosis in the majority of instances will yield very much better to other forms of therapy than it will to irradiation. Warts, except plantar warts, are better treated by desiccation than by irradiation. Psoriasis,[3] because of its certainty to relapse and its chronicity, should be irradiated with the utmost caution. Keloids[4] frequently continue to shrink for three or four months with a unit or a unit and a quarter dose; hence treatment of keloids should be given at long intervals.

2. The apparatus should be modern. There should be two miliammeters, or the milliammeter should be standardized at least once every two months. The timer should be accurate and properly controlled. The apparatus should be standardized as to dosage; the best method is epilation of scalp hair.

3. The use of irritating drugs must be avoided by the patient who is receiving roentgen treatment. MacKee[5] has called attention to the fact that such drugs as iodine, phenol (carbolic acid), salicylic acid, the mercurials and all stimulating preparations are very prone to set up a dermatitis when used in conjunction with x-rays. Therefore the patient should never use any drug over an irradiated area without the knowledge and consent of the radiologist.

4. The patient should not take roentgen treatments from a number of physicians at the same time. It is perfectly amazing, but I have known at least one patient who was irradiated by three different physicians at the same time without any of the radiologists being aware of this fact. The patient should be educated, or at least instructed, never to seek roentgen treatments without giving the names of the men who have previously treated him.

5. Radium should always be filtered through either rubber or aluminum.

6. As small fields as possible should be used if heavy doses must be employed.

7. Fractional doses are much safer than quantities approaching erythema doses.

8. Erythema doses should always be avoided except in malignant conditions or in warts.

9. In the treatment of ringworm on scalps of institutional children, not more than three epilations should be done.

10. Dry skins should never have a total of more than 2½ units even over a period of years.

11. Ordinary skins should not have a dose of over 4 units, and very greasy skins not over 4½ units.

1911 R Street.

ABSTRACT OF DISCUSSION

Dr. Anthony C. Cipollaro, New York: The cause of acute x-ray injuries and of x-ray sequelae is overdosage. Dr. Hazen discussed many of the causes of and reasons for excessive dosage. In general these causes may be divided into technical errors and errors of judgment. While modern technic is by no means scientifically accurate, it has stood the test of time in practical therapy and it is absolutely safe for therapeutic purposes when employed with skill, care and judgment. Dr. Hazen said that telangiectasia occurs without antecedent erythema. I admit that the statements may be true, but I doubt that it is so. Dr. MacKee, in twenty-five years, has not seen a single instance of telangiectasia in which he was absolutely certain that a previous erythema had not occurred. So far as the size of the exposed surface is concerned, the biologic effect increases with the size of the surface until the area is 4 inches square, after which the increase in the size of the exposed area does not matter. The difference in the effect on an area 1 inch square as compared with an area 4 inches square is approximately 25 per cent. This is due to scattering of the rays by the tissues and also to secondary rays. I gather that Dr. Hazen does not believe that variation in individual and in topographic toleration is important. It may not be a major cause, but I believe that it is important. I shall call attention simply to the fact that an epilating dose applied to the scalp will evoke defluvium but not erythema; the same dose applied to the face will often effect erythema without causing alopecia. I do not agree that it is unsafe to give more than a total of 2½ units to dry skin, but I do believe that dry skin is at times less tolerant than is oily skin. The same is true of an inflamed or a florid skin. I desire to emphasize the importance of making the technic as accurate as possible. The dermatologist must not rely solely on the advice of the manufacturer or even on that of the physicist. He should obtain the help of the physicist by all means, become proficient in the use of instruments of precision, such as the voltmeter, the milliamperemeter, the spark-gap, the selenium cell intensimeter, the dosimeters based on ionization, and so on, obtain instruction and advice from reliable practical sources, study reliable textbooks and, finally, depend on skin effects. The modern ionization dosimeter is an excellent instrument. It is less reliable for unfiltered than for filtered radiation. At present I am unwilling to place sole reliance on these instruments. I use such instruments daily, but I depend largely on carefully interpreted skin effects.

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[2] MacKee, G. M.: X-Rays and Radium in the Treatment of Diseases of the Skin, ed. 2, Philadelphia, Lea & Febiger, 1927, p. 639.

[3] Hazen, H. H.: South. M. J. 22: 932 (Oct.) 1929.

[4] Hazen, H. H.: Am. J. Roentgenol. 11: 547 (June) 1924.

[5] MacKee, G. M.: X-Rays and Radium in the Treatment of Diseases of the Skin, p. 370.

Dr. William H. Guy, Pittsburgh: This paper is one in which the potentialities are more serious perhaps than is realized, because the lay public, particularly the legal end, is watching professional views on radiodermatitis, and the number of suits each year becomes greater. Further, it is difficult to obtain insurance covering x-ray burns. Those individuals who are operating are subjected to the closest scrutiny before insurance companies will take the risk. One point I think should be emphasized in regard to dosage, size of application and so on, which is of the utmost importance in estimating the proper dosage in a given case, and that is the varying susceptibility of individuals. This is a moot point, but I am convinced that such a susceptibility does exist among patients, irrespective of dry blond skins or oily skins, and that it is a fact that patients often react to a dose that is well under an erythema dose. I have compared a few such patients with a normal individual of known susceptibility. I accomplish this by taking the arm of a known type and laying it beside that of the unknown type, applying the same dose of rays and noting the reaction that occurs. I found in a small series of patients that a certain proportion do have a definite susceptibility to roentgen rays. An objection may be made to this, that the manner of living, the amount of cosmetics and soap patients use, and the varying conditions in daily life may well determine differences in reactive phenomena; but these differences apply in all therapeutics and certainly do not argue against the essential fact that patients vary in the degree of reaction to the application of radiant energy.

Dr. C. Guy Lane, Boston: During the past twelve years I have had an opportunity to see most of the dermatologic cases in which the patients have been referred for therapy in the x-ray room at the Massachusetts General Hospital. In this department the interns change every three or four months. They are trained in roentgen therapy but have not had previous superficial therapy. Occasionally an assistant roentgenologist has been there for a period of time and has become competent to go ahead with the dermatologic therapy. It may be interesting to outline the method of educating these men. Emphasis is placed on the choice of diseases to be treated and the stage; the type of patient who should be treated, in respect to age, coloration, and the like; the necessity for definite standardization of apparatus, particularly the amount of previous treatment, both roentgen therapy and other recent therapy; the question of size of the area that is to be treated; the effect of the summation of doses, in that any previous roentgen therapy should be considered in estimating the doses to be given, and the necessity of examining areas that are not then under treatment. In addition, on the record there is a special column devoted to the total amount of treatment in skin units, and that is added to, so that the physician always has before him the total amount of treatment the patient has received at the institution and that is combined, so far as ascertainable, with the amount the patient has received elsewhere. By continually stressing these facts, we have attempted to improve results and to impress on these men the need for the utmost care in the therapy of dermatologic conditions.

Dr. George M. MacKee, New York: Dr. Hazen mentioned the delayed appearance of telangiectasia. I do see remarkably delayed cases. I think that the vast majority appear within two years, but I had one patient in whom a mild telangiectasia developed fifteen years after a single mild erythema dose. Apparently, the condition may appear any time from six months to twelve or fifteen years. The later it appears, the less severe it is likely to be. Also, in many instances, telangiectasia tends to become less marked with the passage of time. This is especially true of the very severe cases. Dr. Hazen mentioned filtration as a safety factor. I agree that there is a little more safety with filtered radiation than with unfiltered radiation, but on the other hand the deep effects of filtered radiation may, at times, be injurious. I am still in doubt whether a thin filter (0.5 mm. of albuminum) should be used as a routine or whether to adhere to unfiltered radiation. Possibly, in the future it will be necessary to use filtration because of greater accuracy when dosage is estimated with instruments such as modern practical ionization dosimeters calibrated in the international x-ray unit known as the roentgen. I agree that the best treatment for a third degree ulcer is excision or plastic surgery. Treatment of sequelae must be selected for the individual case. So-called x-ray skin that frequently ulcerates or in which keratoses are constantly developing should be removed by plastic surgery. In the literature, stress is placed on the total dosage. One wants to know that, of course, but more information is required. One wants to know not only the amount but how it was given: the intervals between treatments—one-fourth unit, for instance, given once a week or one unit given every three or four weeks. Dr. Hazen mentioned the combined effect of irradiation and various topical applications. I agree that ointments containing fairly large amounts of irritating chemicals lessen the toleration of the skin for x-rays or radium, and I believe that such applications should be avoided when radium or x-rays are being used. Erythema or exfoliation evoked by topical applications may hide x-ray erythema, and this may be one reason why telangiectasia is thought by many to occur in the absence of antecedent x-ray or radium erythema.

Dr. Howard J. Parkhurst, Toledo, Ohio: The undesirable sequelae are most likely to ensue in conditions which tend to recur or persist, such as sycosis vulgaris, recurrent dermatophytosis, recurrent or generalized neurodermatitis, and especially the generalized type of psoriasis. In many instances it frequently becomes necessary to substitute other forms of treatment. One great danger of undesirable sequelae occurs in irradiation of acne by overlapping on the anterior portion of the neck, as one cheek is treated and then the other. Another condition in which danger lies is the stubborn nail disease, particularly psoriasis of the nails, which may be irradiated for some time without appreciable benefit.

Dr. Thomas W. Murrell, Richmond, Va.: I believe that many men think they are covered by insurance when they are not. I called up my insurance agent and asked, "Am I covered for radium and x-ray dermatitis in my group insurance," and he told me that I was. I asked him to look it up that I might be sure. He called back and said that he thought I was, so I asked him to write the main office of the company and find out definitely. He told me later that the company said I was not covered, but that I could be if I paid an additional fee. I paid that promptly. This is just an example of an insurance company that has been in business in Richmond for fifty years thinking I was covered by my group policy, when I was not. I think it is advisable in all instances to find out from one's company directly whether one is covered or not before a suit comes up.

Dr. Samuel Ayres, Jr., Los Angeles: Another point that might be mentioned is the occurrence of roentgen sequelae following the use of carbon dioxide snow on areas that have been previously irradiated. I am not sure that we dermatologists always inquire into the possibility of previous roentgen treatment when we contemplate using carbon dioxide snow. I recall one instance in which carbon dioxide snow was applied for about thirty seconds with firm pressure in a patient who had received irradiation several months previously without any harmful x-ray effects. Following the application of snow, an ulcer the exact size and shape of the snow pencil developed, which took about two months to heal.

Dr. H. H. Hazen, Washington, D. C.: I wish to mention the danger of patients having roentgenograms taken by dentists. I think that the taking of an unrestricted number of dental pictures in a patient who has had quite a good deal of treatment for acne, for instance, is very dangerous. A second point is that too many roentgenologists are inclined to treat patients without finding out definitely how much treatment they have already received. One should be extremely cautious about finding out all the details of previous therapy.

Clinical Notes, Suggestions and New Instruments

ALLERGIC MANIFESTATION TO INSULIN

William H. Grishaw, M.D., Los Angeles

A study of this case was undertaken because of the marked allergic manifestations to certain insulin products and because of the therapeutic problem which it presents.

C. G., a man, aged 38, gave a history of bilateral pleurisy at the age of 16, which was diagnosed as tuberculosis and treated with rest for a period of about two years. He had had influenza while in the army in 1918, with a recurrence of the old chest condition, and pneumonia in 1922. For many years he had experienced attacks manifested by a rash over the body, with swelling of the hands and lips, and itching of the skin, without known cause. The attacks lasted from one to four hours and disappeared spontaneously. His mother had had diabetes mellitus and died at the age of 72. His father died of emphysema. One brother died of asthma.

The start of the present illness was in October, 1929, with a bronchitis. The patient was first seen by me in April, 1930, at which time he complained of thirst, polyuria, and loss of weight of four months' duration. The blood sugar (fasting) at that time was 365 mg. per hundred cubic centimeters of blood, and a twenty-four hour urine specimen showed 3.3 per cent sugar. A diagnosis of bilateral pulmonary tuberculosis with cavitation on the right had been made, and right pneumothorax had been instituted.

The patient was placed on a restricted diet, and with insulin the diabetes soon came under control. With each injection of insulin there appeared a reaction of the skin, with redness, swelling and itching, localized to the site of injection. This local reaction recurred with each injection for the next twenty-five days. On the twenty-fifth day, the day following his sixth pneumothorax, about fifteen minutes after his morning dose of insulin a generalized urticarial eruption with itching developed which lasted about four hours. The evening dose was given from a different bottle of insulin manufactured by the same company, following which he had the same reaction, with additional swelling of the hands, lips and eyelids. The next morning a small test dose from still another sample made by the same company (company A) was given, with a reaction identical to that given the night previous.

Later in the day, after all symptoms and signs had disappeared, a similar dose of insulin made by another firm (company B) was given and was followed in ten minutes by urticaria, itching and edema. A trial dose from still another firm (company C) gave no reaction whatever, and the patient has continued using this firm's insulin for the past twelve months, with no local or general reaction.

Insulin specimens taken at random, manufactured by these firms and including the specimens to which he originally gave general reactions, were used for intradermal tests, with the result that all insulin specimens manufactured by company A and company B gave definitely positive reactions, while those of company C gave negative results. Company A supplied me with insulin from both pork and beef pancreas as a source and also a "Special" U-80 preparation. These specimens gave positive skin tests. From company B I obtained their end-product in powdered form and a "purified" insulin also in powdered form. These powdered specimens were made up to U-40 strength, *hundredth normal* hydrochloric acid being used as a solvent, and the reaction was then adjusted to p_H 2.5. The stock powdered product gave a positive skin reaction while the "purified" gave a negative test. Beef, pork and veal proteins all gave negative skin reactions. The specimens to which the patient reacted have been tried intradermally in other patients with diabetes mellitus and no reaction was observed.

In order to determine whether the substance to which he reacted could be precipitated, various concentrations of acetone were added to the insulin specimens, and after filtration the acetone was driven off. The acetone-free filtrates of the specimens to which he reacted, tested intradermally, all gave negative tests. Both the insulin specimens and the filtrates have been tested intradermally on various occasions during the past year and the patient gave identical reactions at all times.

Presumably a part or all of the insulin activity was removed by the precipitation, but in order to determine whether there was any insulin left in the filtrates I injected mice with insulin to establish a control, and then with the filtrates. The mice were divided into four groups of three males and two females to the group. The first group received 1/150 unit of insulin per gram of body weight; the second, 1/125 unit per gram; the third, 1/100 unit per gram, and the fourth, 1/75 unit per gram. The result was an increasing number of convulsions over a given period of time with the increase in dosage. This was repeated, the filtrate being used in the same dose for the various groups, and the dose of the filtrate then being increased to ten times the original. With the filtrate there was no demonstrable effect on the animals.

Results of Tests with Insulin from Various Manufacturers

Firm	Insulin	Source	Skin Reaction	Acetone-Free Filtrate Reaction
Co. A	U-20	Pork	Positive	Negative
	U-40	Pork	Positive	Negative
	U-40	Beef	Positive	Negative
	U-80	"Special"	Positive	Negative
Co. B	U-20	Beef	Positive	Negative
	U-40	Beef	Positive	Negative
	U-40 (powdered end-product)	Beef	Positive	Negative
	U-40 (purified powdered)	Beef	Negative	Negative
Co. C	U-40*	Beef	Negative	Negative
	Proteins			
	Beef		Negative	
	Pork		Negative	
	Veal		Negative	

* This product he is now using.

Dr. R. W. Lamson offered to attempt passive transfer skin tests on a small group of patients in the allergy clinic. This was done by sensitizing the skin with a 1 to 1 dilution of the patient's blood serum and twenty-four hours later injecting the insulin and filtrate intradermally, physiologic solution of sodium chloride being used as a control. No positive skin tests were obtained by this method. In other words, Dr. Lamson was unable to transfer passively the patient's sensitivity.

SUMMARY

This patient reacts to insulin manufactured by two firms but not to that of a third firm, which indicates that he is not sensitive to insulin as was at first thought, but is sensitive to some substance contained in the product of companies A and not in that of company C. This substance is [illegible] gives reactions similar to those seen in individuals [illegible] [illegible]

[illegible] Boulevard.

Council on Pharmacy and Chemistry

INTRAVENOUS USE OF BARBITAL COMPOUNDS

The Council has authorized publication of this report on the intravenous administration of barbital compounds.

W. A. Puckner, Secretary.

More than seven years has elapsed since the introduction of the intravenous use of barbitals, sufficient time to justify an assay of the possible value of the method. The chief object of intravenous use has seemed to be the possible employment of barbitals used in this way to produce anesthesia. All the possible changes following intravenous injection, a comparison of the experimental and clinical results, and a determination as to whether the intravenous use has peculiar advantages over other methods of administration, with equal safety, are here considered. There is no doubt that the characteristic hypnotic action of the barbitals can be obtained by oral administration. Since the barbitals act essentially as hypnotics, and not as anesthetics, it is reasonable to entertain doubts about radical departures from the orthodox usage of these drugs. Nevertheless, new methods of using and new uses for well known drugs merit attention. Moreover, the intravenous use of barbitals has been widely exploited by some manufacturers and serious attention has been given to the subject experimentally and clinically. The following considerations are based on an examination of the literature on intravenous medication as it concerns the barbitals.

HISTORY

The clinical use of barbitals intravenously dates from Fredet and Perlis[1] in France, who tried diethylallyl barbituric acid (somnifene) in 1924. Three years later, in 1927, secondary butylbromopropenyl barbituric acid (pernocton) was used in a similar way by Bumm[2] in Germany. Following the experimental trial of sodium isoamylethyl barbiturate by Page and Coryllos[3] in 1926, in this country, there came a period of intensive exploitation of this barbital derivative intravenously beginning with a preliminary report by Zerfas, McCallum, Shonle, Swanson, Scott and Clowes[4] and a clinical report by Zerfas and McCallum,[5] both in 1929. During the next two years several reports on experimental studies in animals appeared. However, by the year 1931 the reports on amytal and other barbitals intravenously decreased appreciably in number. There was likewise a decline in enthusiasm over the method. In fact, by 1931 most clinical reports that showed evidences of effort to determine the value of these drugs for intravenous anesthesia concluded that all the actions and benefits from the barbitals were obtainable from oral administration, as well as, if not better than, from intravenous administration. This moderation in claims for intravenous use by physicians coincided with a cessation of intensive exploitation by manufacturers.

The barbitals will not be considered individually in this report; a collective summary will suffice. Probably the most extensive, and likewise most reliable, studies have been made with amytal. Incidentally, it may be questioned whether wholesale clinical experimentation with a drug whose actions could have been predicted from results on animals was necessary or desirable. It is now generally conceded that all the barbitals act alike qualitatively, differing only quantitatively, so that nothing is to be hoped for in the way of better and safer therapeutics from a barbital alleged to be effective in small dosage. The old law of pharmacology which teaches that efficiency varies directly with toxicity has not been invalidated among the various barbitals placed before the medical profession. Nor are the chemical and physical properties of the barbitals sufficiently different in material ways to influence the present consideration.

EFFECTS ON THE BLOOD

In considering the effects of intravenous use of barbitals, both the direct effects on the blood of the injected barbitals, and reflex or remote effects caused within the circulatory system—secondary effects not aimed at or necessarily desired in their use as hypnotics and anesthetics—must be kept in mind. The barbitals are insoluble organic acids which require large amounts of alkali for solution. Amytal, for instance, requires a degree of alkalinity the equivalent of a buffer solution with p_H 9.5 or 9.8, or the reaction of nearly a ten thousandth normal solution of sodium hydroxide, which is approximately 900 times as alkaline as the blood (p_H 7.2 to 7.4). Solutions of sodium amytal with p_H 9.2 to 9.3 give incomplete and imperfect anesthesia with disturbing effects. Amytal, and for that matter any other barbital, will not remain in solution with the chemical reaction of blood, but is precipitated. Therefore, after intravenous injection, the barbitals must be precipitated in the blood stream or exist in a finely divided physical state, possibly adherent to the formed elements and the proteins of the blood. The situation then is the presence of a foreign body in the colloidal state within a sensitive colloidal system, namely, the blood, whose physical-chemical properties and physiologic function are unintentionally and undesirably affected. There is certainly no evidence in favor of a beneficial action on the respiratory function of the blood under these conditions and no reason for believing that such an action occurs. On the contrary, the changes produced by such foreign bodies, with extensive surfaces, are generally undesirable and harmful. The actions just mentioned have been adequately demonstrated for a large variety of agents by many authorities.[6]

The changes resulting from the disturbed colloidal state of the blood are quite independent of the intrinsic pharmacologic actions of the barbitals. These changes occur with all barbitals, but the weaker the barbital happens to be, pharmacologically and toxicologically, the greater will be the mass of the precipitate in the blood. Since the extent of tissues and blood surfaces involved is probably proportional to the mass of precipitate, and the immediate or colloidal disturbances depend on some surface action mediated by the flocculated material, the physiologic changes, including reflex reactions, may be out of proportion to the intrinsic toxicity. An exact correlation of the physical changes and the functional reactions is not possible, reported. Excretion of barbitals is comparatively slow, lasting about a week, the drugs tending to accumulate without complete destruction, except possibly amytal. Coma is lasting but may be accompanied by restlessness and tremors until death. Recovery from anesthetic doses is variable but may require up to thirty-six hours.

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[1] Fredet, P., and Perlis, Régine: *Bull. et mém. Soc. nat. de chir.* **50**: 789, 1924. Perlis, Régine: Presse méd. **32**: 675 (Aug. 13) 1924. Cleiz and Perlis: Ibid. **32**: 18, 1924. Fredet, M.: Ibid. **33**: 288, 1925.

[2] Bumm, R.: Klin. Wchnschr. **6**: 725 (April 16) 1927.

[3] Page, I. H., and Coryllos, Pol: J. Pharmacol. & Exper. Therap. **27**: 189 (April) 1926.

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[6] Hanzlik, P. J.: The Basis of Allergic Phenomena, J. A. M. A. **82**: 2001 (June 21) 1924.

Most of these actions have also been demonstrated after gastric and hypodermic administrations, except that the actions are slower and the initial fall of blood pressure does not occur and the later fall is not precipitous. This means that the gastro-intestinal and tissue absorption of the barbitals is definite and reliable, from which it follows that all the desired actions can be obtained by giving these drugs by mouth, and that the sudden undesirable actions on the blood and the collapse can be avoided, and, in fact, the sedative and hypnotic actions more satisfactorily controlled.

The toxic and fatal doses of the different barbitals have been found to vary considerably with the chemical grouping in the barbituric molecule, but the activity has varied in the same direction. In no case has the margin of safety been increased by increasing the general activity. Moreover, and this is important in the use of barbitals intravenously for a high degree of depression or for anesthesia, most investigators agree that the margin between doses giving such severe actions and the fatal dosage is too narrow for safety. In dogs, the average oral, rectal and intravenous anesthetic doses of amytal are reported to be about 55 per cent of the minimum fatal dose, but considerable variability exists. Anesthesia may not occur with doses becoming fatal.

In the treatment of the toxic and collapse actions, caffeine, epinephrine and ephedrine, used individually or combined, intravenous dextrose solution, and picrotoxin have been tried with variable success, generally with temporary benefit in frank collapse and with better results during impending, suspected or partial collapse, or if used as prophylactics; but the treated animals under these conditions might have recovered without the use of these antidotes.

CLINICAL STUDIES OF BARBITALS GIVEN INTRAVENOUSLY

Clinically,[9] the following actions after intravenous injection of barbitals, chiefly sodium amytal, have been reported:

1. Full effectiveness of from 12 to 25 mg. per kilogram in from three to five minutes.
2. Difficulty in determining exact and desired dosage.
3. Immediate and sometimes precipitous fall of blood pressure, from about 15 to 30 mm. and up to from 40 to 60 mm. of mercury, according to the dose, rate of injection, physical character of the solution and original level of blood pressure.
4. Slowed, shallow and irregular respiration.
5. Increased pulse rate.
6. Unconsciousness.
7. Deep sleep.
8. Cyanosis.
9. Preservation of reflex activity.
10. Laryngospasm.
11. Severe coughing.
12. Muscular rigidity.
13. Incomplete and imperfect analgesia.
14. Depression out of proportion to toxicity.
15. Retention of mucus in respiratory passages.
16. Decreased urinary elimination, urine containing trace of acetone.
17. Increase in phenolsulphonphthalein excretion at first, decrease later.
18. Transient renal irritation.
19. Decrease in oxygen consumption and tactile discrimination.
20. Allergic reactions with amytal and phanodorn.

Man is more sensitive than are animals. Mild euphoria without sleep and narcosis occurs after 60 mg. of sodium amytal.

In obstetrics, the second stage of labor and uterine contractions are not usually changed, but the infants are frequently apneic and require respiratory stimulation. Excretion of phenobarbital in milk is reported.

Postoperative actions have been reported as follows:

1. Prolonged depression lasting from twelve to eighteen and up to thirty-six hours, according to the dose and the individual.
2. Lack of patient's cooperation and orientation, and considerable confusion.
3. Restlessness and delirium, swallowing of tongue and cyanosis.
4. Decrease in intake of fluid and voiding.
5. Pulmonary congestion and edema due to shallow respiration.
6. All actions profound in the aged and debilitated.
7. Sudden awakening during operation under local anesthesia.

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intravenous route would be an occasional rapid action in an emergency, as in the control of convulsions of toxic or disease origin, or in occasional operations. Hence their intravenous use should be limited for the present to conditions in which oral administration is not feasible either because the patient is unconscious, as in cerebral hemorrhage, eclampsia, or status epilepticus, or because he resists, as in delirium, or because a very prompt action is imperative, as in convulsion from local anesthetics.

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The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

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A Safer World for Babies
Why Should I Use Evaporated Milk?
Milk for Drinking
Frozen Foods — The Automatic Way
Planning Lunches for School Children
Milk-Made Candies
The Story of Evaporated Milk
Nutritive Value of Evaporated Milk
The School Lunch
Eating for Efficiency (Revised)
Send a Good Fellow Basket to a Needy Family
Statistical Data
Safety and Simplicity in Infant Feeding
Some Foods for Children Between 6 Months and 6 Years
Infant Feeding with Unsweetened Evaporated Milk
Evaporated Milk for Health and Protection
More Milk — Smaller Bills
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(proximate analysis of properly ripened banana)

	per cent
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Ash	0.8
Fat (ether extract)	0.6
Protein (N × 6.25)	1.3
Crude fiber	0.6
Reducing sugars as invert	7.1
Sucrose (copper reduction method)	11.1
Starch (by difference)	3.2
Total carbohydrates other than crude fiber (by difference).	21.4
(Mineral analysis: Sherman, Chemistry of Food and Nutrition)	
Calcium (Ca)	0.009
Magnesium (Mg)	0.028
Potassium (K)	0.401
Sodium (Na)	0.034
Phosphorus (P)	0.031
Chloride (Cl)	0.125
Sulphur (S)	0.010
Iron (Fe)	0.0006

Calorics.—0.95 per gram; 27.0 per ounce.

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SATURDAY, DECEMBER 19, 1931

CHEMISTRY'S NEXT SERVICE TO MEDICINE

More than a century ago Laënnec, writing in the first volume of the *Archives générales de médecine*,[1] remarked that the aim of medicine is the cure of disease. For the attainment of this end Laënnec singled out three pathways, described by Cohn[2] as (1) that of the empiricists, who considered it sufficient to distinguish diseases by their apparent signs, (2) that of those who believed it possible to disclose the causes of disease without giving themselves the trouble of learning their effects, and (3) that of those who believed it was necessary to understand the diseases. Cohn adds, by way of interpreting or perhaps of supplementing Laënnec's meaning, that we believe it necessary as the basis of therapeutics to understand the mechanisms, that is to say, the processes which underlie the manifestations of disease, for it is these which it is one of our functions to attempt to correct. That is our practical aim.

For a long time investigators in the domain of the medical sciences have been so deeply engrossed with the efforts to classify diseases and to discover their etiology that practical therapeutics has received somewhat niggardly attention in many quarters. Medical practice has passed through a stage of therapeutic nihilism of which some signs still remain. Obviously, rational therapy depends on the knowledge secured by the intensive study of disease as such; but the relief of suffering and the temporary or permanent correction of defects are inevitable functions of the devotees of medicine. It is not always enough today merely to attempt to reinforce the patient's natural means of defense. The armamentarium of the open minded physician includes for therapeutic purposes drugs, foods, water, serums, vaccines, electricity, heat and cold, mechanical agents, rest, exercise, massage, climate, mental influences and, in fact, whatever physical, chemical and psychic agencies seem to be helpful. To the extent that he may be indifferent to most of these helps he is liable to deprive his patients of some real advantage in the attack on disease.

Students of medicine are sometimes resentful of what they regard as the intrusion of other disciplines or workers in other fields into their domain. This view has been expressed by Cohn in the assertion that a dependence on the outside world for the solution of its problems is in part a reproach to medicine. Probably no injury has yet been suffered, he adds, by society as a result of this dependence. But those advances which depend on knowledge of disease in patients and on actual direct contact with diseased persons have been made by the practitioners of medicine themselves. In this way is to be explained the significance of Sydenham, Jenner and Laënnec; they have taught the use of the classification of diseases, the fact that fevers are preventable, an approach to the diagnosis of visceral disease by means not immediately obvious. These have, after all, constituted the primary advances in medicine. It is this experience which encourages the belief, Cohn concludes, that the development of medicine is in all probability the work of physicians properly trained and supplied with adequate equipment.

In view of the foregoing, it might come as an unpleasant surprise to one not thoroughly conversant with the facts of medical progress to read the title of an essay recently addressed to a group of chemical engineers. The caption was Chemistry's Next Service to Medicine. This contribution, by A. W. Rowe[3] of the Evans Memorial in Boston, deals with the indispensable rôle of the chemist in the preparation of hormones, those substances which are potent regulators of various important bodily functions, such as growth, development, nutrition and reproduction. From drugs to hormones is a relatively simple step. In its pride of accomplishment, medicine must bear in mind that the formal exact study of the action of drugs did not begin until within the lifetime of some living physicians. The first laboratory for the investigation of drugs was established at Dorpat in 1856. Yet chemists had extracted the alkaloid morphine from opium in 1817. Endocrinology, divested of much of its ignorance, misinformation and pretense, seems destined to be one of the major factors in medical progress in the days ahead. The contributions of the chemists in making replacement therapy possible when, as often happens, underproduction of certain hormones leads to the serious effects of endocrine disorder—to serious and even fatal changes in "function level"—deserve frank recognition. Rowe has recalled, for instance, that with their powerful influence on the basic functions of protoplasm any abnormal secretory activity of the individual gland leads to an abnormal expression of those functions over which it exercises a regulating power. End-results such as gigantism, dwarfism, extreme obesity and emaciation, infertility, marked changes in mentality and in the secondary characteristics of sex, and a wide variety of other striking manifestations are thus produced.

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[1] Laënnec, R. T. H.: Arch. gén. de méd. **1:** 5, 1823.

[2] Cohn, A. E.: Medicine, Science and Art, Chicago, University of Chicago Press, 1931.

[3] Rowe, A. W.: Chemistry's Next Service to Medicine, Indust. & Engin. Chem. **23:** 1176 (Oct.) 1931.

The preparation of therapeutically available products representing "active principles" of endocrine tissues has been the contribution of the chemical laboratory. The hormones themselves are only a small part of the individual glandular masses or secretions. Isolation of the potent from the extraneous constituents has often involved great difficulty. Success in the chemical identification of the active components paves the way for chemical synthesis whereby freedom is won from dependence on animal sources often difficult to control. This again is a chemist's job. Rowe has presented challenges to the chemist engaged in this field. The first major problem, he points out, is in the isolation of active extracts, and this has been by no means a simple one. Some of the compounds, at least, are highly labile products and may be destroyed during the processes of extraction by the chemical agents used or even by other materials produced in other portions of the same gland from which they are derived. That insulin, the active material from the islands of Langerhans, a part of the pancreas, is destroyed by the digestive enzymes produced by other cells of the same gland is an illustration of the latter condition. A second problem of moment lies in the standardization of these active principles so that the dose administered may be estimated with some degree of precision. Existing in the organism, as they do, in small quantities and in concentrations capable of producing profound physiologic response, it is essential that means be devised to assay their potency. Even today, many preparations are given on the basis of so many grains or milligrams of the fresh or dried substance without any index of the real content of active material.

A further challenge to the chemist lies in the need of reducing the costs of products now attained through expensive processes of manufacture from unabundant materials. This has an economic rather than a purely scientific import; it is none the less important in the day's work of the physician. Rowe points out that the recently prepared extract from the suprarenal cortex, which has been demonstrated to be effective in Addison's disease, costs about $3,000 a year for the amount necessary to treat a single case. Even in those glandular failures in which the replacement therapy is at a minimum cost level through reasonably large supply of raw material and efficient methods of preparation, it can easily reach $100 a year, a far from negligible sum for a large group of wage earners. Epinephrine and thyroxine can now be produced synthetically. Further progress of this sort will represent contributions the importance of which scarcely needs debate. Rowe further says that adequate amounts of pure standardized chemical entities of established quantitative physiologic activity at reasonable cost will enable physicians to produce an enormous alleviation of human suffering, prolong life, and maintain physical efficiency. Let us not discourage what seems to some as an "intrusion" of the chemist into the domain of medicine.

THE TONSILS IN YOUNG WOMEN

Numerous comments in THE JOURNAL on the need for comprehensive statistical studies on the results of tonsillectomy, particularly in relationship to the important investigations made by Kaiser,[1] have apparently stimulated others to similar studies. Now Cunningham, at the University of California, has studied the results of the physical examination of 14,000 women students during the last ten years. More than a third of the young women entering the university during that period had a tonsillectomy; another third were considered as having normal tonsils; the tonsils in the remaining third were considered pathologic. The study was confined to white women students under 35 years of age, as well as to those concerning whose medical history important information could be obtained. The physical examinations required of all entering students were made mostly by specialists, three of whom served during the entire ten years. While the accuracy of the original histories may have suffered as a result of the haste and excitement attending the entrance examinations, the physical examinations were probably fully as accurate as records of the examinations for the army.

In her study of this work, Cunningham [2] endeavors to bring out the relation of the condition of the tonsils to the infectious diseases of childhood. Especial attention was given to cardiac conditions, for the results of these examinations determine where the student is placed in physical education classes in the university. Evidence of damage to the mitral valve was less among those with normal tonsils than among those students whose tonsils were absent or pathologic; in this respect the latter two groups seemed to suffer equally. The group whose tonsils had been removed showed about half the percentage of damage of the aortic valve that was shown by the group whose tonsils were thought to be normal and about one third of the percentage of damage of those whose tonsils were considered pathologic. Of course, tonsillectomy will not guarantee a halt in the progress of existing cardiac disease, and if the operation is to be used as a therapeutic measure it will produce the best results when done before the cardiac infection occurs or early in its course. The two groups of students with normal and with pathologic tonsils had about an equal number of painful experiences, which in their history may or may not have indicated previous attacks of rheumatism. There was a significant difference, however, between the two groups with normal tonsils and those on whom a tonsillectomy had been done. A high proportion of persons whose tonsils had been removed had had rheumatism.

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[1] Kaiser, A. D.: Effect of Tonsillectomy on General Health in Five Thousand Children, J. A. M. A. **78**: *1869* (June 17) 1922; Effect of Tonsillectomy on the General Health of Twelve Hundred Children as Compared with an Equal Number Not Operated on, ibid. **83**: 33 (July 5) 1924; Results of Tonsillectomy, ibid. **95**: 837 (Sept. 20) 1930; The Relations of Tonsils and Adenoids to Infections in Children, Am. J. Dis. Child. **41**: 568 (March) 1931.

[2] Cunningham, Ruby L.: Normal, Absent and Pathologic Tonsils in Young Women: A Comparison of Histories, Arch. Int. Med. **47**: 513 (April) 1931.

The medical histories of these students were studied also to learn what relation existed between the tonsils and diseases of the respiratory tract, otitis media and the infectious diseases of childhood. The group with absent tonsils gave a history of a higher incidence of all illness and operations than did either of the other two groups. A possible explanation for this is that children who are often ill were most frequently operated on. The group of women students with normal tonsils and the group with pathologic tonsils differed little in the percentage of the incidence of measles, mumps, scarlet fever, diphtheria, chickenpox, whooping cough, rheumatism, pneumonia, pleurisy, chorea, chronic colds and in operations for appendicitis, mastoiditis, cervical glands and operations on the nose. The age when the tonsils were removed had no influence on the total incidence of measles, mumps, chickenpox, whooping cough, pneumonia and influenza. However, early removal of the tonsils seemed to have a slightly favorable influence on the incidence of scarlet fever and diphtheria.

Considering the large number of tonsillectomies and adenoidectomies that have been performed, it is unfortunate that the literature reveals a great lack of accurate information on the effect of tonsillectomy. Opinions still differ on this old question. There seems to be a growing tendency to question the value of tonsillectomy as a prophylactic measure against infectious diseases and as a cure for rheumatism, chorea and carditis. The report of this study agrees, in general terms, with the report of Collins and Sydenstricker, reviewed[3] in The Journal in 1928, and also with the studies of Kaiser. It indicates that tonsillectomy is a useful procedure, but the benefits, when a large control group is compared, are not so striking as could be desired.

COOPERATION IN NECROPSY WORK

The percentage of necropsies performed in this country is still lamentably low. A properly performed necropsy is not only necessary in many cases to establish the exact cause of death but is one of the chief means of advancement of medical knowledge. The reasons for failure to obtain necropsies are obvious. The physician in charge of a case lacks the scientific urge, the relatives of the deceased are opposed, and the mortician is, to say the least, cool, because necropsies may disturb the routine of his work. A joint committee of the New York Academy of Medicine, the New York Pathological Society and the Metropolitan Funeral Directors' Association recently held a series of meetings to discuss the problem. A substantial agreement was reached. All agreed that a necropsy by a pathologist is desirable in order to advance knowledge concerning the nature of the disease and to provide reliable records. The performance of necropsies in a hospital is a constant influence to improve the service and to help physicians serve the next patient with greater confidence and skill.

The hospital and its staff have not completed their services to the family on the death of the patient, but they owe to the family an account of what has occurred. This requires that a representative member of the family come to the hospital for a personal interview and to give permission for examination of the body of the deceased. The funeral director must recognize this relationship and should not oppose the discharge of this obligation. Unreasonable delay by the hospital in its attempt to obtain permission for necropsy is objectionable to a funeral director, as it may require him to cancel contracts for transportation and other services and thus increase his expense. The conflict of interests requires mutual consideration and cooperation. Arrangements should be worked out in every hospital whereby the unnecessary loss of time on the part of the funeral director may be obviated. Hospital employees in general must not give information to funeral directors or to any other unauthorized person in regard to persons critically ill or dead in the hospital. The hospital authorities should be certain that the necessary data for a death certificate are on the chart at the time of admission of the patient, with exception of the facts relating to the nature, progress and termination of the disease. Any interference by a funeral director with the legitimate efforts of the hospital to obtain permission for necropsy shall be regarded as a reportable grievance. The necropsy may be performed in a way to facilitate the work of the embalmer. The main longitudinal incision, the committee believes, should end over the midsternum, and curved incisions with the concavity toward the head should be carried laterally to each shoulder. When the skull is opened, the frontal bone should be cut above the hairline and the base of the skull cemented with plaster before the skull cap is replaced. When the neck organs and tongue are removed, the head should be embalmed through the carotids unless there is a serious contraindication. Other recommendations made by the committee as to technic are that necropsies should be completed at the time promised, if there has been an advance agreement, and that a representative of the funeral director should be a welcome associate at the necropsy table. The spirit of cooperation shown in the report of the joint committee is commendable. Similar cooperation everywhere would no doubt result promptly in an increase in the percentage of necropsies.

Gradually, competent embalmers are tending toward the encouragement of postmortem examination. In the November issue of the *Casket and Sunnyside*, a publication for morticians, appears an editorial commenting on a previous statement on this subject by The Journal. The concluding statement of this editorial reads:

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[3] Tonsillectomy in the United States, editorial, J. A. M. A. **91**: 1195 (Oct. 20) 1928.

> We might as well recognize, first as last, that the welfare of the living, the public health, is the chief concern of the public, and that to permit the medical profession to secure sufficient scientific data, autopsies must be performed. We might as well also decide that if we explain our difficulties to the medical practitioners, rather than antagonizing them, they will be willing to cooperate with us in avoiding unnecessary mutilation of bodies committed to them for autopsy. Finally, we might as well realize that if we say "an autopsied body can't be embalmed or so prepared that family and friends may view it," we're stultifying ourselves and our claims to professional standing, and admitting our own incompetence.

The editorial points out further that the mortician should be proud of his ability to make presentable a body that has been subjected to postmortem examination and that the cry against such examinations on the part of morticians must be taken as a confession of incompetence. Such support from one of the leading trade publications in the field is an encouraging sign to scientific medicine. It means that the pathologist will now need only to instruct the family and not to convince the mortician.

MATERNAL MORTALITY

The propaganda which has made most of the people in the United States and elsewhere believe that our maternal mortality is worse than that of any other country in the world is difficult to overcome regardless of its inaccuracy. In his International Studies on the Relation Between the Private and Official Practice of Medicine, Sir Arthur Newsholme [1] has pointed out that international comparisons are not dependable because of the great variation that exists in different countries. In developing such statistics it is possible to discover considerable differences in puerperal death rates which do not correspond with real differences. The practices in England and Scotland do not differ markedly, but those in the Netherlands and in the United States differ greatly from those in England and Scotland. Indeed, Sir Arthur Newsholme feels that the international position is somewhat chaotic and that it is doubtful whether the chaos could be removed by the adoption of a rigid and detailed international system of rules, so much depending on the personal bias of the statistician responsible for relegating a dubious certificate embodying more than one item to its right compartment.

Recently, Dr. Robert J. Lowrie [2] has indicated the serious character of the difficulty of properly evaluating death certificates involving puerperal mortality in this country. Not every death certificate on which there is mention of pregnancy or childbirth can count as a maternal death, because pregnancy and childbirth are frequently complicated by cardiac disease, hyperthyroidism, tuberculosis, syphilis and similar complications. Reports of cases are available in which a fever appearing post partum was associated with the appearance of congestion of the lungs in a patient with a long history of tuberculosis. The question as to whether the fever was due to puerperal sepsis, pneumonia or recurrent manifestations of tuberculosis involved a decision too delicate to be shown adequately on the death certificate. Dr. Lowrie feels that our present method of determining maternal mortality rates is quite inaccurate and he offers a new system which is of interest. The analysis of the technic involved is a matter for biometricians.

Every one should realize the impossibility of accurate comparisons between maternal mortality rates in various countries and, indeed, in individual communities in the same country, in hospitals and in general practice. Enough evidence has been developed to indicate that proper prenatal care and adequate obstetric care will lower greatly the mortality and morbidity rates in any group. Let our efforts, then, be devoted to securing the benefits that may be had by such service rather than to acrimonious debates concerning odious comparisons. Let us avoid, furthermore, exaggeration of our difficulties for purposes of propaganda leading to unnecessary expenditures and appropriations.

THE CREDIBILITY OF NARCOTIC ADDICTS

The issues in a case at law sometimes may turn on the ability of the judge and the jury to appraise correctly the weight to be given the testimony of a narcotic addict. Is every narcotic addict hopelessly given to fabricating fairy tales, a pathologic or inveterate liar who lies even when he has no personal end to gain by doing so? Do narcotic addicts habitually live in a world of fancy, so that no matter how much they may wish to do so they cannot observe accurately and report correctly what goes on about them? Persons to whom these problems are matters of concern, and particularly those engaged in the administration of justice, will find them lucidly, dispassionately and cogently discussed in an opinion filed by Judge Henry Clay McDowell, of the United States District Court for the Western District of Virginia, in *Kelly* v. *Maryland Casualty Company*,[1] and adopted by the United States Circuit Court of Appeals, Fourth Circuit.[2] An abstract appears in this issue of The Journal.[3]

Judge McDowell was confronted by a medical problem: Should he or should he not permit the introduction of evidence of the use of morphine by a witness in a case on trial, for the purpose of discrediting her testimony? He went boldly outside the sources of information to which judges ordinarily resort and personally consulted such medical books as were available. The value of his written opinion is enhanced by his citations to the medical books he consulted and by his quotations from them. To a lawyer it may seem dangerous for a judge to base a ruling on what he has read in medical books not admitted as evidence. The rules of evidence almost everywhere forbid the introduction of such books as proof of the facts and theories stated in them. An apparent exception to the general rule denying the admissibility in evidence of medical books is sometimes made where an expert witness testifies that he bases his opinion on the work of a particular author. In such a case, however, the particular work may be introduced in evidence solely for the purpose of contradicting and thereby discrediting the witness. In the present case, so far as the record shows, the books consulted were not offered in evidence by the parties to the cause and they had no opportunity of advising or objecting with respect to their use. Probably the greatest danger in the method adopted by Judge McDowell, however, lies in the paucity of medical books ordinarily available to a judge for consultation and in his limited ability to appraise unaided the weight of the statements of fact and of opinion in the books that he consults. It is one thing for a judge to consult a law book for guidance, and another and quite a different thing for him to consult a medical book. Any law book that is likely to be consulted is based on authority, and the sources of such authority are stated, so that the accuracy of the book can be determined by any competent lawyer. In medicine, however, there are no "authorities" comparable to the authorities in the legal world, and the value of a medical book depends on the knowledge, skill, experience and moral courage of the writer, with none of which the average judge is apt to be acquainted. From a legal point of view the very fact that the book of any given medical writer is consulted as a possible basis for a legal decision makes the author a witness—a secret witness unless the parties to the cause are fully advised concerning the matter—a witness not under oath and not subject to cross-examination, whose testimony is by those very circumstances inadmissible.

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[1] Newsholme, Arthur: International Studies on the Relation Between the Private and Official Practice of Medicine with Special Reference to the Prevention of Disease, conducted for the Milbank Memorial Fund, London, George Allen and Unwin, Ltd., Baltimore, Williams & Wilkins Company **1**: 41, 1931.

[2] Lowrie, R. J.: The Maternal Mortality Rate Computed and Standardized by a New Method, New York State J. Med., Oct. 1, 1931.

[1] 45 Fed. (2d) 782.

[2] 45 Fed. (2d) 788.

[3] Narcotic Addiction as Affecting Veracity, this issue, page 1917.

The course adopted by Judge McDowell, however, wisely pursued as he seems to have pursued it, is a course that should no doubt be encouraged. Probably the best plan for any judge to follow, if he desires to emulate Judge McDowell's example, would be to seek guidance through the nearest available organized medical library, or through the state or county medical association, or even through the American Medical Association. Possibly the day may come when judges will be provided with the aid of official medical advisers to help them over the difficulties that beset the nonmedical reader when he tries to find his way through the mazes of medical bibliography.

Current Comment

PREPARING A PEDIGREE

The importance of heredity in relation to disease is generally recognized. Unfortunately, however, few realize that the study of heredity is a scientific problem and that the language and technic of studies in heredity are specific to that science. A study of heredity charts in various periodicals will indicate to any observer the necessity for uniformity in the use of various symbols and the desirability of completeness. Since heredity charts are likely to be used fifty or a hundred years after they are first prepared as well as at the time of their first publication, and since they are likely to be studied by investigators in various parts of the world, the need for simplicity and accuracy becomes still more apparent. The Eugenics Society of Great Britain[1] has prepared for those especially interested a pamphlet entitled "How to Prepare a Family Pedigree" and a book of forms, charts and directions to be used by those who undertake such studies. The forms are concise; the directions take into account all the considerations that have been mentioned. The current tendency in medicine toward greater attention to problems of constitution and heredity indicates still further the desirability of this material.

SIR DAVID BRUCE

The cabled news of the daily press announced the death, November 27, of Major General Sir David Bruce in England at the age of 76 years. Sir Ronald Ross, himself one of the distinguished investigators of our day, is said to have described Bruce as one of the medical geniuses who served the British Empire. He will long be remembered for his contributions to our knowledge of trypanosomiasis, or African sleeping sickness. The malady has long been known; indeed, there are references more than two hundred years old mentioning a sleeping distemper among Negroes of the Guinea coast. Not until the present century was the etiology of this disease put on a sound basis. First, actively moving bodies were observed in the blood of patients. The motile agents were presently identified as trypanosomes. It was the merit of Bruce and his co-workers to have demonstrated that there are insect vectors for the causative micro-organisms, tsetse flies being the offenders. The so-called Gambian sleeping sickness is now widely distributed in the tropical zone of Africa. As first shown by Bruce, the Gambian parasite, Trypanosoma gambiense, is normally transmitted by the tsetse fly Glossina palpalis, and its distribution is now almost coincident with the range of this species. According to Hegner,[1] the indications at present are that Trypanosoma gambiense and Trypanosoma rhodesiense, the recognized organisms of African sleeping sickness, are usually transmitted by the tsetse flies belonging to the species Glossina palpalis and Glossina morsitans. Other species of the genus

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[1] How to Prepare a Family Pedigree, issued by the Eugenics Society, 20, Grosvenor Gardens, London, S. W. 1; price, sixpence.

[1] Hegner, R. W.: The Transmission of Human Protozoa, Science 64: 28 (July 9) 1926.

Glossina may perhaps serve as vectors under favorable circumstances. The etiologic factor of Malta fever was described by Bruce as Micrococcus melitensis in 1887. This, too, was an epoch-making discovery among what Garrison has termed "the chief glories of nineteenth century medicine." During the World War the studies of a British committee under Sir David Bruce working under field conditions in France contributed to the important demonstration that trench fever is a louse-borne disease.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts from *2:25* p. m. to *2:30* p. m. on Monday, Wednesday and Friday over Station WBBM (770 kilocycles, or 389.4 meters), of the Columbia Broadcasting System.

The program for the week is as follows:

December 21.	Infantile Paralysis.
December 23.	Sleep and Growth.
December 25.	No broadcast.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

License Revoked.—The license to practice medicine of Dr. Thomas B. Sylar, Lepanto, was revoked by the State Medical Board of the Arkansas Medical Society at its regular meeting, November 10-11. Dr. Sylar was convicted and sent to the U. S. Penitentiary at Leavenworth, Kan., for violating the Harrison Narcotic Act.

Society News. — The Craighead-Poinsett County Medical Society entertained the First Councilor District and Northeast Arkansas Medical Society at Jonesboro, recently; the program included papers by Drs. Darmon A. Rhinehart, Little Rock, president, state medical society, on "Trends in Medicine"; Lee V. Parmley, "Medical Legislation," and Dr. Robert J. Haley, Jr., Paragould, "Early Diagnosis and Surgical Treatment of Perforated Gastric Ulcers."——Among others, Dr. Robert L. Sanders, Memphis, addressed the Second Councilor District Medical Society, Batesville, recently, on "Troublesome Cervix Uteri as Seen by the General Practitioner."

CALIFORNIA

Health at San Diego.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended December 5, indicate that the highest mortality rate (19) appears for San Diego, and the rate for the group of cities, 10.8. The mortality rate for San Diego for the corresponding period last year was 16.7, and for the group of cities, 11.8. The annual rate for eighty-two cities for the forty-nine weeks of 1931 was 11.8, as against a rate of 11.9 for the corresponding weeks of 1930. Caution should be used in the interpretation of weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

Society News.—The San Francisco Heart Committee held its second annual graduate symposium on heart disease, November 19, sponsored by the San Francisco county medical and tuberculosis associations and the Health Council of the San Francisco Community Chest; a clinical pathologic conference also featured the meeting. Officers elected at this session include Drs. Arthur L. Bloomfield, chairman, and William C. Munly, secretary.——The Santa Barbara County Medical Society was addressed, October 12, by Drs. Ira B. Bartle, San Luis Obispo, on "Actinomycosis," and Henry J. Profant, Santa Barbara, on "Management of Mastoiditis and Petrositis."——A recent meeting of the Stanislaus County Medical Society, Modesto, was addressed by Dr. Joseph Catton, San Francisco, on "Medical Aspects of Recent Murder Cases."——The October meeting of the Monterey County Medical Society at Monterey was addressed by Dr. Edwin Schultz, Stanford University, on "Recent Advances in Poliomyelitis."——Dr. Carl R. Howson, Los Angeles, addressed the San Bernardino County Medical Society, San Bernardino, October 6, on "The Future of Medicine."——Dr. Dean Lewis, Baltimore, will address the Los Angeles Surgical Society, December 30, on "The History and Development of the Surgical Clinic."——Among others, Dr. Eldon W. Tice addressed the Los Angeles Obstetrical and Gynecological Society, December 8, on "Effect of Hot and Cold Packs on Blood Pressure in Abdominal Surgery," and Dr. Philip A. Reynolds, "Friedman Test for Diagnosis of Pregnancy."——Dr. Carl R. Howson, Los Angeles, was elected president of the Southern California Medical Association at its recent annual meeting; Drs. Harry E. Henderson, Santa Barbara, and Robert E. Ramsay, Pasadena, vice presidents, and Robert William Langley, Los Angeles, secretary. The next session will be held in Santa Barbara in April.——The San Francisco Pathological Society was addressed, December 7, by Drs. William H. Probert, Poughkeepsie, N. Y., and William T. Cummins on "Carcinoma of the Thyroid with Metastases"; P. Smith, "Retropleural Neurocytoma"; Dorothy A. Wood and Frederick L. Reichert, "Congenital Hemihypertrophy of the Leg with Neurofibromatosis"; Adelbert M. Moody, "Normoblasts in the Chorionic Villi in Early Pregnancy," and James F. Rinehart, "Studies on the Hemoglobin of Erythrocytes."

CONNECTICUT

Society News.—The Waterbury Medical Association was addressed, November 12, by Dr. James J. Hennessy, Waterbury, on "Treatment of Tuberculosis by Artificial Pneumothorax." Dr. John D. Booth, Danbury, gave a demonstration of the treatment.

Campaign to Prevent Colds.—With the cooperation of the student body and the faculty, the college board of health of Connecticut College, New London, has begun a campaign to prevent colds. Katharine Blunt, Ph.D., president of the college, is head of the board in conjunction with Dr. Mary K. Benedict, resident physician. It is proposed to build up resistance so that there may be as little susceptibility to colds as possible; to treat colds at the very start, thereby preventing their development, and to prevent those who do get colds from spreading them among the others. Instructions are placed in the dormitories and the students have been asked to go to the infirmary at the first suggestion of a cold so that treatment may be given before the cold develops. Students with colds will be kept in the dormitory until the danger of infecting others has been removed.

DISTRICT OF COLUMBIA

Personal.—Dr. Arthur C. Christie, president of the Medical Society of the District of Columbia, was elected president of the board of trustees of American University, Washington, November 2.——Dr. Radford Brown of Sloane Hospital for Women, connected with Columbia University, New York, has been appointed professor of obstetrics and gynecology and executive officer of the department in the George Washington University Medical School; he will assume his new duties, January 1.

New Building at George Washington University. — Construction will soon begin on a four-story addition to George Washington University Medical School, Washington. The building, which will cost about $75,000, will contain a central laboratory for the hospital, teaching laboratories for clinical microscopy, bacteriology and hygiene and preventive medicine, research laboratories for bacteriology, and animal quarters for experimental work for the entire school in addition to other research laboratories. This building will serve as temporary quarters until the medical school can move into a new plant, as a part of the proposed George Washington University Medical Center.

Medical Inspection of School Children.—According to the report made by a survey group of the public health committee of the Washington Board of Trade, medical inspection of schools in Washington is adequate so far as public service reasonably can be expected to extend. However, further medical and dental care of children provided by private means was recommended by a subcommittee. A survey of public bathing pools showed that all necessary steps for assuring sanitation are being carried out. The results of a survey of ways and means of promoting greater safety for the public in the handling of motor traffic are to be announced later.

ILLINOIS

Personal.—With the creation of a new health office, that of county epidemiologist, the position of health officer of DuPage County has been discontinued. William V. Hopf, D.D.S., Lombard, who was the health officer, will assume the duties of the new office.

Society News.—The Fulton County Medical Society was addressed, December 1, in Canton, by Dr. Frank E. Simpson, Chicago, on the use of radium in malignant tumors, and Dr. Paul G. Dick, Chicago, treatment of malignant conditions with X-rays; Dr. Josiah J. Moore, also of Chicago, gave a demonstration of the Canti cancer film.——Drs. Bransford Lewis and Alphonse McMahon, both of St. Louis, addressed the Sangamon County Medical Society, Springfield, December 3, on "A Survey of Urology for the General Practitioner" and "Differential Diagnosis Between Early Tuberculosis and Hyperthyroidism," respectively.——Dr. Samuel M. Feinberg, Chicago, addressed the Rock Island County Medical Society, December 8, on "Allergy in General Practice."——Dr. Frederick A. Baumgart was elected president of the newly created Danville Medical Society, and Dr. George T. Cass, secretary.——The Jo Daviess County Medical Society was addressed at Warren recently, among others, by Dr. Karl B. Rieger, Freeport, on "Thrombo-Angiitis Obliterans."——The Clinton County Medical Society was addressed at Carlyle, November 17, by Drs. William S. Carter, Trenton, and J. P. Murphy on "Otitis Media, Middle Ear Infection" and "Relation of Eyestrain and Headaches," respectively.——At the meeting of the Perry County Medical Society, December 3, Dr. Frank F. Maple, Chicago, spoke on "Abortion and Its Treatment," and Dr. James H. Hutton, Chicago, "Recent Advances in Endocrinology."

Chicago

Society News.—Edwin O. Jordan, Ph.D., was elected president of the Institute of Medicine of Chicago at its annual meeting, December 1; Dr. Arthur R. Elliott, vice president; Dr. George H. Coleman, secretary, reelected; Dr. John Favill, treasurer, and Dr. Ludvig Hektoen, chairman of the board of governors. Dr. Otto L. Schmidt gave the presidential address on "The Rôle of Medical and Hygienic Museums in Education."——Dr. Morris Fishbein addressed the Historical Club of the University of Illinois College of Medicine, December 2, on "The Future of Medicine."——The Chicago Gynecological Society was addressed, December 18, by Drs. Milton J. Summerville and Frederick H. Falls on "A Critical Study of the Technic and Clinical Value of the Sedimentation Rate in Gynecology"; Jacob P. Greenhill, "Thymophysin and Weak Pituitary: Comparison in 40 Cases," and Richard A. Lifvendahl, "A Sign for the Detection of Small Amounts of Free Blood in the Abdomen."——The Chicago Pediatric Society was addressed, December 15, among others, by Dr. Henry E. Irish on "Effect of Cod Liver Oil-Skimmed Milk Feeding on Bones After One Year."——The Chicago Neurological Society was addressed, December 17, among others, by Dr. Isadore Pilot on "Putrid Brain Abscess—Its Pathogenesis."——At the meeting of the Chicago Society of Allergy, December 21, Dr. Harry L. Huber, among others, will speak on "Dermatitis Due to Burweed Marsh Elder."——Drs. Thomas D. Allen and Ramon Castroviejo will address the Chicago Ophthalmological Society, December 21, on "The Autonomic Nervous System and the Eye" and "A New Knife for Ophthalmic Surgery," respectively.

KANSAS

Photographic Service.—The photographic department of St. Francis Hospital, Wichita, recently announced that its service is available to all physicians who desire it. The work will be done on a cost basis, a charge of $1 having been decided on for one photograph. The service comprises the production of clinical photographs of patients and gross specimens, photomicrographs, the copying of charts, drawings and printed or typewritten data, and the making of lantern slides. The photographic department is supervised by the pathologist of the hospital, although it is operated as an independent unit.

Society News.—The Labette County Medical Society was addressed, November 18, by Drs. Earle G. Brown and William C. Menninger, Topeka, on infantile paralysis.——The Franklin County Medical Society was addressed, November 21, by Drs. Sherwin E. Mella and Robert Lee Hoffmann, both of Kansas City, on "Diagnosis and Treatment of Common Skin Diseases" and "Urology," respectively.——The Wyandotte County Medical Society was addressed, November 14, by Drs. Elam A. Reeves, Kansas City, on "Placenta Praevia"; Earle G. Brown, Topeka, "Epidemiology of Infantile Paralysis," and James R. Elliott, Kansas City, Mo., "Management of Poliomyelitis During the Stage of Recovery."——The Harvey and Sedgwick county medical societies, in joint session at Newton, were addressed, November 3, by Drs. Arthur Steindler, Iowa City, on hip and back sprains and their connection with compensation cases, and James A. Wheeler, Newton, vitamins. Dr. Henry N. Tihen, Wichita, addressed the Sedgwick County Medical Society, November 20, on "Medical Organization."

MICHIGAN

Personal.—Dr. Alden G. Sheets has been appointed health officer of Eaton Rapids.——Dr. Lloyd S. Dunkin has been appointed health officer of Greenville to succeed the late Dr. Will H. Lester.

Dr. Moll Honored.—The Genesee County Medical Society tendered a testimonial dinner, October 28, to Dr. Carl F. Moll, Flint, president of the Michigan State Medical Society. The toastmaster was Dr. Frank E. Reeder. The program included talks by Dr. Moll; Dr. Frederick C. Warnshuis, Grand Rapids, on the state medical society; Judge V. W. Dodge, the physician and the probate court; Dr. Clyde C. Slemons, Grand Rapids, the physician and the state board of health, and Dr. Leslie L. Willoughby, the Genesee medical society.

Society News.—Dr. James D. Bruce, Ann Arbor, addressed a joint meeting of the Berrien County Medical Society and the dentists of the county, November 23, on "Focal Infections and Their Relations to Systemic Disease."——A symposium on infantile paralysis featured the meeting of the University of Michigan Pediatric and Infectious Disease Society, Ann Arbor, November 19-20.——Dr. Ralph Pemberton, Philadelphia, addressed the medical section of the Wayne County Medical Society, December 8, on "The Newer Outlook on Chronic Arthritis."——Dr. Harry W. Plaggemeyer, Detroit, addressed the Hamtramck Medical Society, November 20, on the activities of the Wayne County Medical Society.——Judge Charles B. Collingwood, Lansing, addressed the Calhoun County Medical Society, December 1, on "The Doctor in Court."——The Washtenaw County Medical Society, Ypsilanti, conducted a symposium on cancer at its meeting, November 24; the speakers included Drs. Frank L. Rector, Evanston, Ill., Max Ballin, Detroit, and Conrad Georg, Sr., Eugene B. Potter and Mark Marshall, all of Ann Arbor; Dr. George F. Inch addressed the society, among others, December 11, on "Importance and Necessity for Early Diagnosis and Treatment of Mental Cases."——Dr. William H. Alexander, Iron Mountain, addressed the Dickinson-Iron County Medical Society, December 3, on "Some Surgical Problems in Pulmonary Tuberculosis."——Dr. Karl A. Menninger, Topeka, Kan., addressed a joint meeting of the Wayne County Medical Society and the Detroit Society of Neurology and Psychiatry, December 15, on "Focal Suicide: Psychogenic Aspects of Physical Disease."

MINNESOTA

Personal.—Dr. Jay Arthur Myers has recently been promoted from associate professor to professor of preventive medicine at the University of Minnesota School of Medicine, Minneapolis.——Dr. Lincoln A. Sukeforth, public health director of Duluth, has retired after eight years' service.——Dr. Joseph A. Roy, Red Lake Falls, was elected mayor of that city in November.

Licenses Revoked.—At a meeting of the Minnesota State Board of Medical Examiners in St. Paul, November 10, the license of Dr. John Gerardi Halland, Motley, was revoked because of his habitual indulgence in the use of drugs. The license of Dr. David Gordon, Minneapolis, was also revoked at this meeting as the result of his conviction on nine counts of violating the Harrison Narcotic Act. Dr. Gordon was sentenced to eighteen years' imprisonment at Leavenworth. This was his second offense.

Society News.—Dr. Emil S. Geist, Minneapolis, addressed a joint meeting of the West Central and Kandiyohi-Swift county medical societies recently on "Treatment of Fractures."——The Washington County Medical Society was recently addressed by Drs. John C. McKinley, Minneapolis, and Wallace H. Cole, St. Paul, on infantile paralysis.——Dr. Frederic E. B. Foley, St. Paul, addressed the Minnesota Academy of Medicine, December 9, on "Embryology and Surgical Correction of Certain Renal Malformations." Dr. Irvine McQuarrie, Minneapolis, gave a thesis on "Some Recent Observations Regarding the Nature and Treatment of Epilepsy in Children."

MISSOURI

Personal.—The Missouri Commission for the Blind recently announced that Dr. Meyer Wiener had resigned as director of the department for the prevention of blindness, which he established in 1929. Dr. Wiener is associate professor of clinical ophthalmology in Washington University School of Medicine, St. Louis.——The library of Dr. Thomas J. Downing, New London, has been given to the St. Louis Medical Society by Mrs. Downing in compliance with a request of the physician before his death, Dec. 7, 1930. The collection consists of 743 volumes.

Society News.—Dr. Horace W. Soper, St. Louis, entertained four of his classmates in Washington University School of Medicine at a dinner, November 17, given in honor of Dr. George B. Tuttle, Kalaupapa, Hawaii. The physicians were Drs. Tuttle, Albert E. Taussig, Adolph G. Schlossstein and Edward J. Goodwin, St. Louis. Dr. Tuttle addressed the St. Louis Medical Society, among others, November 10, on "Leprosy in Hawaii."——At the December 8 meeting of the St. Louis Medical Society, Dr. Russell A. Hennessey, Memphis, Tenn., spoke on "Traumatic Lesions of the Urinary Organs," and Drs. Howard L. Stitt and Charles E. Wooding, Cincinnati, discussed "Bronchial Lavage and Its Medical Aspects."——The Kansas City Southwest Clinical Society held its monthly clinic at the Kansas General Hospital, December 8, when Dr. Morris Fishbein, Chicago, spoke on "The Trend in Medical Practice." The evening session in conjunction with the Jackson County Medical Society was addressed by Dr. Quitman U. Newell, St. Louis, on "Five-Year End-Results in the Treatment of Carcinoma of the Uterine Cervix."——The Twenty-Sixth District Medical Society was addressed, November 17, among others, by Bruce E. Ratcliff, D.D.S., Springfield, on "Teeth as Foci of Infection—Diagnosis and Treatment," and Dr. Duff S. Allen, St. Louis, "Thyroid Toxicosis."

NEW JERSEY

Dr. Theobald Smith Honored.—The Rockefeller Institute for Medical Research gave a dinner, November 20, at the department of plant and animal pathology near Princeton in honor of Dr. Theobald Smith, for many years director of the department. The occasion marked the opening of the Theobald Smith House, which was for many years the residence of Dr. and Mrs. Smith and has now been remodeled as a staff house for scientific workers. Dr. Simon Flexner, New York, director of the institute, presided at the dinner and addresses were made by Dr. William H. Welch, Baltimore, John D. Rockefeller, Jr., and Dr. Smith. Ground has recently been broken for the erection of new buildings for the division of plant pathology (The Journal, June 20, p. 2131). There will be a laboratory building two and a half stories high, eight greenhouse units and potting sheds. The name of the Princeton branch has been changed to the Department of Plant and Animal Pathology of the Rockefeller Institute for Medical Research.

NEW YORK

New State Hospital.—Dr. William J. Tiffany, superintendent of Kings Park State Hospital since 1928, has been appointed superintendent of the new Pilgrim State Hospital, Brentwood, the first units of which have recently been opened for the reception of patients. Accommodations for 1,000 patients are now ready and 480 have already been received. It is expected that the project will be completed in the summer of 1932. There will then be eighteen buildings, erected at a cost of about $20,000,000, with a capacity for 6,600 patients. The hospital is named for Dr. Charles W. Pilgrim, Central Valley, for many years superintendent of the Hudson River State Hospital, Poughkeepsie, and at one time chairman of the former state hospital commission. Dr. Tiffany has been in the state hospital service since 1904, except for a short period at St. Joseph's Hospital, Paterson, N. J.

Clinics on Cancer.—The tumor clinic of the Memorial Hospital, Albany, is conducting a series of monthly clinical meetings on cancer for all physicians interested. Each meeting begins with a clinicopathologic conference, followed by discussion of the incidence, history and classification of cancers of the region under study for the day and later by a tumor clinic and round table discussion of cases. For evening sessions, addresses by visiting physicians have been arranged. The first two were given by Drs. Ernest M. Daland, Boston, November 4, on "Importance of the Tumor Clinic in the Cancer Problem," and Burton J. Lee, New York, December 2, "Early Diagnosis and Treatment of Cancer of the Breast." Future lectures will be by Drs. George M. MacKee, New York, Jan. 6, 1932, on cancer of the skin; William P. Healy, New York, February 3, cancer of the female generative organs; Benjamin S. Barringer, New York, March 2, cancer of the urinary tract; Louis C. Kress, Buffalo, April 6, bone tumors, and Lloyd F. Craver, New York, May 4, medical treatment of the cancer patient. Dr. Brayton E. Kinne, Albany, is executive director of the tumor clinic.

New York City

New Red Cross Building.—The New York Chapter of the American Red Cross celebrated the twenty-fifth anniversary of its founding, November 5, with the dedication of a new twelve-story chapter house at Lexington Avenue and Thirty-Eighth Street. The house was built with funds from the Conrad Hubert Fund, administered by former Gov. Alfred E. Smith, former President Calvin Coolidge and Julius Rosenwald, Chicago philanthropist. Among speakers at the ceremony were John Barton Payne, chairman of the central committee of the Red Cross, Washington, D. C.; Dr. Livingston Farrand, president of Cornell University; John H. Finley, associate editor of the New York *Times*, and former Governor Smith.

Society News.—Members of the laboratory staffs of the hospitals in the Bronx and representatives of the medical examiner's office recently organized the Bronx Pathological Society, with Drs. Joseph Felsen as president; Charles H. Hochman, vice president, and William Aronson, secretary. Dr. James Ewing addressed the first meeting, December 15, on "The Place of Pathological Anatomy in Modern Medicine," and Dr. Felsen, "Tumors of the Colon and Rectum."——Dr. Theodore H. Weisenburg, Philadelphia, addressed the New York Physical Therapy Society, December 9, on "Physical Therapy in Diseases of the Nervous System."——Dr. Walter B. Cannon, Boston, addressed the section on neurology and psychiatry of the New York Academy of Medicine, December 8, on "The Autonomic Nervous System and Its Chemical Mediators."——A meeting of the New York Electrical Society, December 16, was devoted to discussions of the uses of electricity in medicine. Dr. Howard A. Kelly, Baltimore, presided and the following speakers gave addresses: Gioacchino Failla, Sc.D., Memorial Hospital, on the use of high voltage roentgen rays in the treatment of cancer; Drs. Charles F. Tenney, Jr., Fifth Avenue Hospital, on the fever-producing machine; Grant E. Ward, Johns Hopkins University Medical School, Baltimore, the so-called radio knife, and Horatio B. Williams, professor of physiology, Columbia University College of Physicians and Surgeons, the electrocardiograph.

NORTH DAKOTA

Unlicensed Practitioner Sentenced.—Robert G. Errington, who has operated in Fargo as a naturopath and "cancer specialist," advertising his offices as a "nature clinic," was sentenced, October 30, to spend thirty days in jail and to pay a fine of $300. He was committed to the Cass county jail pending the filing of an appeal bond, which was set at $1,000. In passing sentence, Judge P. M. Paulsen is reported to have said that Errington had openly defied the law not only in North Dakota but in other states. The Journal in 1928 reported that Errington had been found guilty of violating the basic science law of Minnesota and was fined $500 and costs. He had previously been sentenced in the same state to five months in jail for violating the medical practice act. According to the secretary of the state medical association, several persons have recently complained that Errington not only guaranteed cures, for which large sums of money were paid in advance, but had sued them on notes given by them in addition to the cash advances.

OREGON

Personal.—Dr. Henry H. Dixon, formerly of Denver, has joined the faculty of the University of Oregon Medical School as professor of neuropsychiatry.——Dr. Edward A. Weir has been appointed supervisor of public health activities for the U. S. Public Health Service in the district of Portland to succeed Dr. Frank S. Fellows, who was recently appointed district medical director of Alaska.——Dr. Josiah Morris Slemons, Los Angeles, addressed the Polk-Yamhill-Marion Counties Medical Society, Salem, November 10, on "Induction of Labor at Term."

PENNSYLVANIA

Society News.—At the meeting of the Delaware County Medical Society, December 10, Drs. Owen J. Toland, Philadelphia, and Aaron Lovett Dewees, Ardmore, spoke on "Prophylactic Obstetrics" and "Technic of Contraception," respectively.——Dr. Arthur F. Coca, New York, lectured in Pittsburgh on "Classification of Allergic Diseases with Reference to Diagnosis and Treatment," November 24, under the auspices of Montefiore Hospital.——Drs. James K. Everhart and Henry T. Price, among others, addressed the Pittsburgh Academy of Medicine, December 8, on "Transfusion in Infancy," and "Leukemia in Children," respectively.——Dr. Jesse O. Arnold, Philadelphia, addressed the Lycoming County Medical Society, Williamsport, December 11, on "Cause and Control of Eclampsia."

Philadelphia

Changes at Temple University.—Dr. Hugo Roesler, formerly of the University of Vienna, Austria, was recently appointed assistant professor of radiology at Temple University School of Medicine. Recent promotions include those of Drs. George W. Deitz, to associate professor of cardiovascular diseases of children; Edward C. Davis, to assistant professor in proctology; Thomas Carroll Davis, to assistant professor in rhinolaryngology and Samuel Goldberg, to clinical professor of pediatrics.

Society News. — The Philadelphia Association of Retail Druggists entertained Philadelphia physicians at a smoker, December 4. Addresses on the cooperation of the two professions were delivered by Drs. George C. Yeager, W. Burrill Odenatt and John O. Bower, and Prof. Ernest Fullerton Cook, Pharm.M., among others.——A symposium on juvenile delinquency was conducted at the meeting of the Philadelphia Psychiatric Society, December 11. Speakers were Drs. Frederick H. Allen, Samuel Leopold and James S. Plant, Newark, N. J., and Judge Paul N. Schaeffer, Reading.——Dr. Abraham Flexner, New York, addressed the College of Physicians of Philadelphia, December 14, on "The Graduate School and Full Time Teaching."——Dr. Charles E. G. Shannon delivered the postgraduate seminar of the Philadelphia County Medical Society, December 11, on squint as encountered by the general practitioner.——Dr. Hubley R. Owen addressed the Philadelphia Academy of Surgery, December 7, on "The Problem of Delayed Union and Ununited Fractures."——Drs. Hugh W. Josephs, Baltimore, and David L. Drabkin addressed the Philadelphia Pediatric Society, December 8, on "Nutritional Anemia: Its Prevention and Treatment" and "Recent Progress in Experimental Anemia," respectively.——The annual banquet of the Medical Alumni Association of the Medico-Chirurgical Society of Philadelphia was held, November 19. Dr. John J. Dailey, McAdoo, was elected president.——Dr. John A. McGlinn, among others, addressed the Obstetrical Society of Philadelphia, December 3, on "Reconstruction of the Urethra."——Dr. Louis Edeiken, among others, addressed the Philadelphia Roentgen Ray Society, December 3, on "Stimulating Doses of X-Rays for Amenorrhea and Sterility."——Dr. George E. de Schweinitz addressed the American Philosophical Society, December 4, on "Toxic Amblyopias with Especial Reference to Methyl Alcohol."

SOUTH CAROLINA

Society News.—Among speakers before the Fifth District Medical Society, Chester, November 1, were Drs. Robert W. McKay, Charlotte, N. C., on "Urological Problems of the General Practitioner"; William J. Henry, Chester, "Glandular Fever," and Hugh P. Smith, Greenville, "Primary Hypochronic Anemia."

Grant for Research on Goiter.—Bernard M. Baruch, New York, has recently given $13,000 to the South Carolina Food Research Laboratory at the Medical College of the State of South Carolina, Charleston, for investigations into the relation of diet to simple goiter. Seasonal and other variations in the amount of iodine available normally in the environment of persons in goitrous and nongoitrous regions will be studied. Goiter is not endemic in South Carolina.

TENNESSEE

Society News.—Dr. George I. Baker addressed the Knox County Medical Society, Knoxville, November 17, on "Management of Diabetes in Children." Dr. Harvey J. Howard, St. Louis, addressed the society, November 23, on "Mechanism of Defense of the Mucous Membrane."——Dr. Richard A. Barr addressed the Nashville Academy of Medicine, November 17, on appendicitis, with a review of 500 cases subject to operation. Other recent speakers have been Drs. John S. Cayce, November 3, on "Treatment of Hyperemesis Gravidarum," and William R. Cate, November 10, "Relationship of Hypertension and Nephritis."——Dr. John E. Frazier, Newbern, was elected president of the Walnut Log Medical Society, comprised of physicians of western Kentucky and Tennessee, at its meeting, November 13-14, at Walnut Log, on Reelfoot Lake. Among speakers at the meeting were Drs. Willard Bartlett, St. Louis, on "Results of Experience with Barbituric Acid Compounds for Surgical Anesthesia"; Peter Whitman Rowland, Jr., Memphis, "Immediate and Ultimate Prognosis of Certain Types of Cardiovascular Disease"; William T. Black, Memphis, "Differential Points in Diagnosis of Pelvic Masses," and Ernest H. Baird, Dyersburg, "Diseases of the Gallbladder."——The Tennessee Hospital Association will hold its annual meeting jointly with the Kentucky Hospital Association at Memphis in April, 1932, it has been announced.——Drs. Perry Bromberg and Samuel S. Riven, Nashville, addressed the Blount County Medical Society, Maryville, November 14, on "Renal Calculi" and "Thyroid Heart," respectively. The Knox and Monroe county medical societies were guests at the meeting.——Dr. John S. Freeman, Springfield, was elected president of the Middle Tennessee Medical Society, at its seventy-fourth semiannual meeting, November 6, at Fayetteville. The next meeting will be held in Sparta in May, 1932.——Dr. Edward C. Mitchell, Memphis, among others, addressed the medical society of Hardin, Lawrence, Lewis, Perry and Wayne counties, Savannah, October 22, on pyelitis and other diseases of the kidney.——Dr. Howard P. Hewitt addressed the Chattanooga and Hamilton County Medical Society, November 12, on "Prenatal Care and Management During Labor and Puerperium."——Dr. James L. Morton, Shelbyville, addressed the Bedford County Medical Society, November 19, on apoplexy.

TEXAS

License Revoked.—The license of Dr. Pedro M. Hernandez, Corpus Christi, was revoked, November 20, by the judge of the one hundred and seventeenth district court of Nueces County in a suit brought by the state board of medical examiners. The suit was based on the allegation that the license was obtained by fraud in that Hernandez had represented himself as a graduate of the National University School of Medicine of Mexico, whereas he had not attended or graduated from that school.

WEST VIRGINIA

Personal. — Dr. Vinton A. Selby, Clarksburg, resigned, November 1, as health officer of Harrison County and was succeeded by Dr. Americus J. Kemper, Lost Creek.

Society News.—Dr. Haven Emerson, New York, conducted a two-day institute for health workers during the meeting of the West Virginia Public Health Association, held at Morgantown, November 19-21. His subjects were "Preventable Disease from the Standpoint of the Public Health Official and the Medical Profession" and "Public Health Practices and Standards." Other speakers were Drs. John L. Lavan, Toledo, Ohio, on immunology, and Estella Ford Warner of the U. S. Public Health Service on the status of West Virginia's health program. Dr. William J. MacDonald, Wellsburg, was elected president and Dr. David Littlejohn, Charleston, secretary.——Dr. John R. Caulk, St. Louis, addressed the Ohio County Medical Society, Wheeling, December 11, on "The Cautery-Punch Operation." Dr. David Silver, Pittsburgh, addressed the society, December 4, on "Future Progress in the Care of the Cripple."

GENERAL

Radiological Society Awards Medals.—Two gold medals for distinguished service in the field of radiology were awarded to physicians at the recent meeting of the Radiological Society of North America in St. Louis. Dr. Carlos Heuser, Buenos Aires, Argentina, who was the guest of the society for the meeting, received a medal in recognition of work in methods of making roentgenograms for the study of pregnancy. Dr. Maximilian J. Hubeny, Chicago, was awarded a medal in honor of his research on the determination of dental focal infection, the injection of the sphenoid sinuses with a suspension of barium sulphate and oblique projection in the examination of the lumbar spine. Dr. Francis Carter Wood, New York, was elected president and Dr. Byron H. Jackson, Scranton, Pa., was made president-elect of the society; Dr. Donald S. Childs, Syracuse, N. Y., was elected secretary. The officers will assume their stations January 1.

Operations for Removal of Cataracts in India. — A group of American surgeons plan to perform about 100 operations for the removal of cataracts each day in India during the winter months, according to a recent report. The work is under the direction of Dr. Henry T. Holland, Shikarpur, who holds an annual eye clinic at the Seth Heranand Charitable Eye Hospital. The American physicians include, it is reported, Drs. Walter I. Lillie, Rochester, Minn.; Oscar B. Nugent, Agnes Beulah Cushman and Louis Bothman, Chicago; Watson W. Gailey, Jr., Bloomington, Ill., and Joseph J. Hompes, Lincoln, Neb. Certain sections of northern India are said to be characterized by a greater prevalence of cataracts than any other section of the world; some of the causes for this condition are intense sunlight and lack of proper nourishment which creates premature senility. The British government pays the surgeons, and the operations cost the patient nothing. A group of specialists performs the operations; a second group fits the patients with glasses after the operations have been performed. It is planned to treat more than 5,000 natives, the report stated.

Society News.—The American Urological Association will hold its next annual meeting in Toronto, Canada, May 30-June 2.——At the annual meeting of the Association of American Medical Colleges in New Orleans, November 30-December 2, Dr. Louis B. Wilson, director of the Mayo Foundation of the Graduate School of the University of Minnesota, was elected president; Dr. Herman G. Weiskotten, dean, Syracuse University School of Medicine, vice president, and Dr. Fred C. Zapffe, Chicago, secretary, reelected. The next annual meeting will be held in Philadelphia.——The twelfth annual meeting of the American Student Health Association will be held in New York, December 29-30. Among speakers listed on the program are Drs. Shailer U. Lawton, New York, on "Infectious Conditions in Relation to Physical Activity"; Thomas K. Richards, Boston, "Prevention and Treatment of Knee and Ankle Injuries"; Jay Arthur Myers, Minneapolis, "Eleven Years' Observation on Tuberculosis among University Students," and Milford E. Barnes, Iowa City, Iowa, "Health Examination of Food Handlers by University and College Health Services." Dr. Warren E. Forsythe, University of Michigan, Ann Arbor, is president of the association.——At the recent annual meeting of the Central Neuropsychiatric Association, Dr. Karl A. Menninger, Topeka, Kan., was elected president; Dr. Hans H. F. Reese, Madison, Wis., vice president, and Dr. Henry W. F. Woltman, Rochester, Minn., secretary. The next meeting will be held in September, the location to be decided later.

Follow-Up Committee of White House Conference.—Two conferences of the Follow-Up Committee of Section I of the White House Conference on Child Health have already been held to consider the scope of its work and methods of carrying it out. The objects of the White House Conference were (1) to study the present status of the health and well being of the children of the United States; (2) to report what is being done for child health and protection, and (3) to recommend what ought to be done and how to do it. It was to carry out this third objective that the organization of the Follow-Up Committee was authorized at the last session of the White House Conference (The Journal, June 6, p. 1962). The survey made by Section I revealed that the gaps in child health service were of two kinds: failure to apply much that is known, and the necessity for further investigation in the clinic and laboratory that the needs in the promotion of child health may be more adequately met. The committee's first function is to try to stimulate a more adequate application of the known by advising constructively on and initiating principles of health betterment in the working programs of existing organizations active in the promotion of child health. The committee's purpose will be to invite the formulation and acceptance by all the agencies involved in promotion and protection of the health of the child of a central program embodying the basic principles on which are founded the physical and mental stamina of the people. It is hoped to continue this committee for ten years, which would bring it up to the probable next national child health conference. Members of the committee include Dr. Ray Lyman Wilbur, Washington, D. C., honorary chairman; Dr. Samuel McC. Hamill, Philadelphia, chairman; Dr. Fred L. Adair, Chicago; Dr. Kenneth D. Blackfan, Boston; Ida M. Cannon, R.N., Boston; Dr. Anton J. Carlson, Chicago; Dr. Samuel J. Crumbine, New York; Dr. Clifford G. Grulee, Chicago; Dr. Henry F. Helmholz, Rochester, Minn.; F. J. Kelly, Ph.D., Chicago; Guy S. Millberry, D.D.S., San Francisco; Dr. Fred Moore, Des Moines, Iowa; Sophie C. Nelson, R.N., Boston; Dr. Everett D. Plass, Iowa City; Richard E. Scammon, Ph.D., Rochester, Minn.; Dr. Wingate Todd, Cleveland; Dr. Philip Van Ingen, New York; Henry F. Vaughan, Dr.P.H., Detroit, and Dr. Borden S. Veeder, St. Louis.

LATIN AMERICA

Research on Leprosy.—An international center for research on leprosy is to be established in Rio de Janeiro by the Brazilian government in cooperation with the Council of the League of Nations, according to plans made at the session of the council in Geneva, September 1. The object is to undertake work that may contribute, by means of epidemiologic, clinical and biologic research, toward prevention and treatment. A specialized course of instruction open to scientists, members of the medical profession and hygienists of all countries is planned. The cost of the installation and upkeep of the institution is to be met by the Brazilian government, but gifts, legacies and grants will be welcomed. The plans are for five years, at the end of which time an extension may be proposed. The governing body for the center as contemplated will consist of the members of the health committee of the League of Nations with one representative of the donating government.

FOREIGN

New Journal of Diseases of Digestive System.—A bimonthly journal, *Archivio Italiano delle Malattie dell'Apparato Digerente*, appeared for the first time in October, in Bologna, Italy. The first issue contains ninety-six pages of original articles on topics related to conditions or diseases of the digestive system. Dr. C. Frugoni, Padua, is the editor and Drs. G. M. Fasiani, Padua, and A. Busi, Rome, associate editors.

Hughlings Jackson Fund.—In answer to an appeal from admirers of the late Hughlings Jackson, a fund of £1,110 has been subscribed to endow the triennial lecture of the neurological section of the Royal Society of Medicine. A die is now being executed by James Metcalfe for the medal, which will bear on the obverse side a portrait of Jackson. The first medal will be presented to this year's lecturer, Sir Charles Sherrington.

Bubonic Plague in China.—An unusually extensive spread of bubonic and pneumonic plague is being reported in the north China provinces of Shansi and Shensi. The first report of Dr. Percy T. Watson, director of the hospital at Fenchow, Shansi, showed that 100 villages were infected. Late in October Dr. Watson with fifteen members of his staff left for the plague-infected area, the nearest point of which is four days' journey west of Fenchow. It was stated that every year at this time bubonic plague breaks out in this region. The plague recedes in December, as cold weather diminishes rat-flea population. The mortality from bubonic plague in northern China is about 95 per cent. The Chinese government gives attention to plague prevention throughout the entire year. The Fenchow staff takes on the work at the request not only of the Shansi provincial legislature and governor but also of the Chinese national health administration; both these organizations provide funds for expenses. The Chinese national quarantine service sent three physicians in addition to the head of the department, Dr. Wu Lien Teh.

Government Services

Dr. Stiles Retires from Public Health Service

Dr. Charles Wardell Stiles, zoologist of the U. S. Public Health Service since 1902, retired from active duty, October 1. Dr. Stiles, a native of New York, received his early education at Connecticut Wesleyan University and studied later at various foreign universities, taking the degree of doctor of philosophy at Leipzig in 1890, and doctor of medicine from the University of Paris Faculty of Medicine in 1896. Many honorary degrees have since been conferred on him. Dr. Stiles began his service with the government in 1902 as consulting zoologist to the bureau of animal industry of the department of agriculture, and professor of zoology in the public health service. He has held teaching positions in medical zoology at Georgetown University, the Army Medical School, the Naval Medical School and Johns Hopkins University. From 1909 to 1914, he was scientific secretary of the Rockefeller commission for the eradication of hookworm. He is the author of many books relating to his specialty and recently finished a key catalogue of the parasites of men and animals, indexed in all the most important languages (The Journal, September 19, p. 860). Representatives of the public health service, the bureau of animal industry, the bureau of plant industry, the bureau of biological survey, U. S. National Museum, medical departments of the army and navy, Johns Hopkins University and other groups gave a dinner in honor of Dr. Stiles, October 7, at the Cosmos Club, Washington. Among the speakers were Drs. William H. Welch, Baltimore; William Sydney Thayer, Baltimore, and Arthur M. Stimson.

Appointments in Drug Control Unit

Drs. Northen O. Tribble, Atlanta, Ga., and Virgil S. McDaniel were recently appointed to fill vacancies in the drug control unit of the food and drug administration, U. S. Department of Agriculture. These vacancies were caused by the resignation of Dr. James J. Durrett, chief of drug control, and Dr. George E. Clarke, medical officer in drug control unit. Dr. Frederick J. Cullen was advanced to succeed Dr. Durrett. Dr. McDaniel was transferred from the U. S. Public Health Service.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 21, 1931.

Research on the Cause of Cancer

It may be remembered that in 1925 Dr. W. E. Gye, with the help of the microscopist Mr. J. E. Barnard, F.R.S., brought forward the theory that cancer is due to the cooperation of a virus (consisting of minute spheroids rendered visible by dark-ground illumination and photographed by ultraviolet rays) and a "specific factor." His researches attracted world-wide attention, but his theory was not considered established. Dr. Gye, however, was so convinced of its truth that he retired to the laboratories of the National Institute for Medical Research and now, after six years' patient work, has produced, in conjunction with Dr. W. S. Purdy, a book on the cause of cancer which embodies his later researches. The authors are satisfied, contrary to the prevalent view, that cancer is a parasitic disease. They attribute the difficulty of accepting their view to the complexity of the mechanism involved: two components of a widely different nature, neither of which can act alone. Dr. Gye has shown that malignant tumors can be produced in chickens by injecting extracts of tumors rendered free from cancer cells. He did this with the Rous sarcoma, verifying the results obtained by Rous. It has been argued, however, that Rous sarcoma is not a true cancer and that therefore the results are not applicable to the latter disease. Dr. Gye is now able to report that he has been able to extract from cancer a "something" which, when added to an extract of the Rous sarcoma treated in such a way as to destroy all virus or living organism, caused a growth when injected into a chicken. The deduction seems to be that the cancer also contains the living organism. This is the crucial experiment of the series, but it cannot yet be repeated with reasonable regularity. Hence it is concluded that "the question of the direct demonstration of viruses in new growths of mammals remains in a disappointingly inconclusive state. The subject has more than theoretical importance. There is an immediate practical aspect. If methods of handling mammalian viruses and of classifying them by immunity experiments could be discovered, then, since we have shown that large animals produce antiviral antibodies readily, the way to prophylactic immunization of man against cancer would be available." This is the immediate and urgent problem of cancer research. So far, the opinions of experts is guarded. Dr. J. A. Murray, director of the Imperial Cancer Research Fund Laboratory, says that Dr. Gye evidently recognizes the difficulties of the investigation and the extent to which the demonstration is not conclusive. Without a more careful consideration of Dr. Gye's new presentation of his views, Dr. Murray would not commit himself to any fuller statement. Professor McIntosh, director of the Cancer Research Laboratories, Middlesex Hospital, says: "The book is an important contribution to our knowledge of cancer."

Fewer Fatal Accidents

The continued attempts to reduce the fatal accidents from automobile traffic are at last bearing fruit. In the first nine months of this year there was a reduction of 10 per cent in accidents resulting in death, but a small increase was shown in other accidents. Last year an average of twenty persons a day were killed in the streets. In each of the last ten years the number has exceeded that of the previous year, but this year there were 293 fewer deaths than in the corresponding period of 1930. There was a slight increase in the total number of accidents, from 95,995 to 102,187, but this rise is held probably to be due to the fact that under the new road traffic act accidents must now be reported to the police, who thereby get to hear of more nonfatal accidents than in the past. Lieut. Col. J. A. A. Pickard, general secretary of the National Safety First Association, commenting on these facts, said that they were a source of great satisfaction to the association. They proved that the pessimists were wrong who prophesied that the passing of the road traffic act and the abolition of the speed limit would result in twice as many people being killed on the roads. The figures confirmed the association's observations that not only were automobile drivers generally showing more consideration to other road users but pedestrians were doing their share by being more alert and careful. Much of the credit was due to the local safety first councils, of which there were now nearly fifty.

Another Gigantic Nursing Home

Arrangements are made for the erection of a nursing home in the Marylebone Road, the consulting quarter of London, with 600 beds for patients, and hotel accommodations for relatives and friends, at a cost of $5,000,000. It is proposed to erect a building of nine stories, containing full facilities for all varieties of spa, electrical and other medical treatments, which will be available both for residents and for outpatients. It is anticipated that it will be possible to limit the charges of the nursing home to $5 a night and to reduce considerably the charges for many varieties of medical treatment. At present it is only in the hospitals that such facilities exist for medical treatment, and as a rule these are not used by the well-to-do. The latter are nursed in their own homes or in the small nursing homes, of which the facilities are very limited. The plan includes lounges of the hotel type, a roof garden laid out to give the greatest possible amount of sun and shelter, a pump room where every variety of medicinal water will be available, and a gymnasium for therapeutic purposes. It is intended to extend the scheme to Liverpool, Manchester and other large cities.

Award to Dr. W. B. Cannon

The Baly medal of the Royal College of Physicians is awarded every alternate year to the person who is deemed to have most distinguished himself in the science of physiology, especially during the two years immediately preceding. It has been awarded to Dr. W. B. Cannon, professor of physiology at Harvard. In presenting it, the president, Lord Dawson, described Dr. Cannon's contributions to knowledge as a monument of industry and achievement. Since Dr. Cannon took his M.A. degree in 1897, scarcely a year has passed that has not shown a harvest from his labors. Lord Dawson therefore could refer only to such pieces of his work as appeared to be landmarks. His first period, 1898-1910, was concerned with the experimental study of the movements and digestive activities of the alimentary tract, by means of the roentgen rays after opaque substances had been swallowed or injected. This work had recast our knowledge of digestion. In his second period, Cannon passed to the study of the effect of emotional states on gastro-intestinal function and thence to the physiology of the suprarenals—the association between epinephrine and fear, anger and hunger. Then came the war, and he worked in a casualty clearing station on the British front and later with General Finney of the U. S. Army at Dijon. Since the war he had been engaged in research into the function of the sympathetic, including the part played by it in the internal secretions.

In reply Dr. Cannon said that, over and over again, researches carried out in one direction proved by accident to be fruitful in another, and this had happened to him. The director of a scientific institution should always remember that the stimulus to work and the active cooperation received from students and collaborators must be taken into account when an individual is selected for personal award.

ITALY

(From Our Regular Correspondent)

Sept. 30, 1931.

The National Congress of Pediatrics

The Società italiana di pediatria held recently its fourteenth national congress at Florence, under the chairmanship of Prof. G. B. Allaria, director of the Clinica pediatrica of the University of Turin, aided by numerous foreign pediatricians. The session was opened in the Great Hall of the University with an address by Professor Allaria, who described the work of the Società di pediatria, which was founded in Turin in 1898 and which recently established also regional chapters. The speaker emphasized that the activity of the pediatric clinics is always directed toward ends that make for an improved national life. He explained also the proposal that the training of practicing physicians in pediatrics be made more comprehensive; furthermore, that health officers be required to take suitable courses in pediatrics, with the financial aid of the communes. The courses should be given at regular intervals and should take into account the fact that the professional activity of the health officer is devoted in large part to the prevention and treatment of diseases of children. Professor Allaria recalled the wonderful service rendered, in the field of pediatrics, by such great national organizations as the Opera nazionale per la protezione della maternità e dell'infanzia, the Red Cross, the Consiglio delle ricerche, and the Società di ortopedia, radiologia, eugenica e talassoterapia.

Addresses were delivered also by Professor Lereboullet, of the Academy of Paris, and Professor Mouriquand, of the Academy of Lyons.

Prof. Francesco Valagussa, subcommissioner of the Opera pro maternità e infanzia, reported that the society during the past three years expended 106,000,000 lire, or more than $5,000,000, in aid of mothers; 178,000,000 lire, or more than $9,000,000, in aid of children, and 24,000,000 lire, or $1,200,000, for the education in hygiene of the people of the rural districts. The results secured were as follows: In the ambulatoriums of the society, 88,442 mothers and prospective mothers, and 304,448 infants and children, were treated; fifty-nine ambulant chairs were created for maternal aid and puericulture, with 2,138 consultants, in which 88,095 mothers and gravidas and 1,800,000 children received aid. Aid was given during the nursing period to 77,000 legitimate mothers and to 27,000 unmarried mothers who recognized their obligations to their child. Prophylactic treatment in threatened tuberculosis was given to 23,000 children, and 6,000 were admitted to institutions as curable patients and as educable though abnormal. The hygienic conditions of 2,800 institutes were improved as a result of 3,141 sanitary inspections. By means of special legislative provisions, the society has brought it about that nearly all illegitimate children are at present recognized and fed at the breast. The number of such children recognized increased from 4,800 in 1927 to 27,580 in 1930. The society appointed a commission, with Prof. Filippo Bottazzi of Naples as chairman, for the study of alimentation in the institutes that receive children. The commission, to which works on pediatric subjects were contributed by physiologists, pediatricians and obstetricians, compiled dietetic tables that will be used in all the institutes. Just recently, the society established in Rome an aid center for mothers and children, which comprises ambulatoriums for nurslings, quarters for the admission and treatment of infants, quarters for the temporary admission of weakly children of an abnormal constitutional type, laboratories, rooms for roentgenologic and light treatment, and an experimental kitchen. The department for children is now complete, and the department for mothers is nearing completion and will begin to function in a few days. The work of the ambulant chairs for maternal aid and for puericulture is in full swing. They assist the mothers by training them in their duties, and apply to the nurslings the acquirements of puericulture and pediatrics. As a result, the morbidity and mortality in the rural districts have been greatly reduced. After Professor Valagussa's speech, the official topics on the program were taken up.

PURULENT PLEURITIS IN CHILDREN

The first topic, "Purulent Pleuritis in Children," was entrusted to four essayists. Professor Nasso, of the University of Messina, mentioned the various diseases, and most important of all, bronchopulmonitis, that give rise to purulent pleuritis. He considered the general and the local symptoms, which vary with the age and the condition of the patients, and explained the various clinical forms that pleuritis may assume in children. He discussed the various methods of clinical and etiologic classification, and described the course, the outcome and the possible complications of the disease. The speaker spoke finally of the differential diagnosis and of the prognosis, emphasizing that it is necessary to bear in mind, among various other data, the age of the patient and the primary disease.

Professor Castronuovo of Messina discussed methods of radiologic research applicable for the diagnosis of empyema and showed their value in determining the various clinical forms of purulent pleuritis.

Professor Laurisch, of the University of Naples, discussed the pathogenesis and the pathologic anatomy of purulent pleuritis. On the basis of 840 personal cases observed in the Clinica pediatrica of Naples, he connected purulent pleuritis with inflammatory conditions of the lung. He referred to certain bacteriologic data pertaining to pus in the pleura, and to the physicochemical conceptions that, according to most recent theories, regulate the formation of pus.

Professor Cocchi of Florence discussed the various methods of treatment for empyema. He demonstrated that better results are secured with medical treatment. He explained the method he used in about fifty cases, by means of which he succeeded in lowering the mortality to about 6 per cent.

In the discussion, Professor Lereboullet of Paris pointed out that in nurslings pleuritis is often associated with bronchopulmonary lesions, and that it is not exceptional to find it accompanied by pulmonary abscess. Professor Mouriquand of Lyons called attention to the importance of the symptom of dulness in the axillary region for the diagnosis of purulent pleuritis.

Professor Comba, director of the Clinica pediatrica in Florence, closed the discussion. Of the various methods discussed during the congress, the medical method appeared plainly the most advantageous, and only in a few special cases is surgical intervention justified. The physician should keep in mind all the methods proposed and apply in an individual case whichever promises to further the best interests of the patient.

ENCEPHALITIS IN CHILDREN

The second topic on the program, "The Syndromes of Encephalitis in Children," was introduced by Professor De Toni of Bologna, who explained the types of lesions encountered in various forms of encephalitis. The anatomic lesions are rarely characteristic, and hence an exact classification of the types of encephalitis, taking account of etiologic, anatomic and clinical criteria, has been impossible. With respect to the origin of the disease, a virus has been invoked concerning the existence and nature of which opinions are widely divergent.

Professor Taccone discussed the acute forms of encephalitis, observing that the diversity of the symptoms and the diverse mode of their development constitute clinical pictures so varied and inconstant that it is difficult to group them and describe them under separate and distinct headings. Nevertheless, Taccone sought to give a clear picture of the acute forms of encephalitis, not only of the primary disease but also of the types occurring secondary to infectious diseases and of the epidemic forms. The prognosis depends on various factors, such as the age of the patient and the time of the development of complications involving the nervous system. The author spoke also of the treatment of encephalitis by means of injections of serum of convalescents.

Professor Bergamini of Parma considered the chronic forms of encephalitis and the sequels that occur in children. Also in these cases the subject is complicated by the difficulty of classifying forms of diverse symptomatology. The speaker explained both the psychic and the neurologic forms and emphasized that the prognosis of the chronic types of encephalitis must be very reserved, owing to the possible appearance of late and new symptoms.

Professor Midulla, delegate of the Opera Nazionale Balilla, explained the activities of the society that he represented, in addition to its educational work. He spoke of the service organized in the ambulatoriums and in the consultation centers, and of the adoption of the biotypologic record card, with which two million youths are now provided. He took up then the prophylactic work against social diseases and insurance against accidents, which have decreased in number in spite of the increase in the number of persons insured. The congress passed a resolution commending the activities of the Opera Balilla in the promotion of health and robustness of children and the human race.

Professor Galeazzi emphasized the need of collaboration on the part of pediatricians to organize a system of aid for lame, paralytic and mutilated children.

After the general discussion on encephalitis, the congress passed a resolution, presented by Professor Frontali of Padova, pertaining to the possible relations between vaccination against smallpox and the appearance of encephalitis. Since in recent years there has been developing, in medical circles and among the public, an exaggerated fear of smallpox vaccination, owing to the observation of cases of encephalitis following vaccination, the congress thought it advisable to announce that the vaccinal etiology is far from being demonstrated, and to urge that no changes be made in the laws and the practice of compulsory vaccination, which is the sole protection as yet known against epidemics of smallpox.

Professor Spolverini, director of the Clinica pediatrica in Rome, announced a new technic in artificial feeding. In spite of the fact that the best adapted food is used (cow's milk), and the most precise rules are followed, artificial feeding often gives results that are anything but satisfactory and commonly constitutes an ever present menace, especially in the institutes to which large numbers of nurslings are admitted. Studying the problem of cow's milk from the point of view of colloidal equilibrium, Spolverini and his co-workers succeeded, by means of the addition of a so-called colloid protector, in modifying the intimate structure of some constituents of cow's milk (particularly the casein), so as to bring about that certain phenomena of digestion (precipitation, coagulation and other processes) may be completed in almost the same manner as in the case of human milk. The colloid protector best adapted for the purpose has been found to be acacia. In applying this method for four years in his clinic, Spolverini has obtained very favorable results, aided by researches and laboratory examinations, and he expressed the hope that his colleagues might try the method and that they would confirm his observations.

DIETARY REGULATIONS FOR GROUPS OF CHILDREN

The last day of the congress was devoted to the elaboration of the topic "Dietary Regulations for Collective Groups of Children." The first speaker, Professor Macciotta of Cagliari, discussed the food requirements and the methods of determining them, emphasizing the importance of the surrounding conditions and of the constitutional status of the individual. He considered the alimentary value of the principal foods, pointing out that the most important source of vegetable proteins and carbohydrates lies in cereals. Professor Brusa of Milan spoke on alimentation in the first year of life and took up the diet of wetnurses. Professor Lucca of Turin explained the criteria to be followed in choosing the diet of older children up to the time of adolescence—criteria which vary according as it is a question of complete alimentation (continued stay in an institution) or partial alimentation (admission for part of the day), and dependent also on the age and the constitution of the person. The discussion was taken up by Professor Mouriquand of Lyons, Professor Bergamini of Parma, Dr. Capecchi, and others.

After a general discussion, the conventionists took a trip to Siena and then proceeded to Perugia, where the congress closed. Professor Allaria was chosen president of the society and Professor Valagussa was elected vice president. Rome was selected as the meeting place for the next congress.

International Congress of Surgery

At the ninth International Congress of Surgery, to be held at Madrid in 1932, the delegates from Italy will be Prof. Leonardo Dominici of Perugia, who will discuss "Diagnosis and Treatment of Intraspinal Tumors;" Professor Lusena of Genoa, who will consider "Surgery of the Esophagus," and Professor Uffreduzzi of Turin and Dr. Lorenzetti of Milan, who will describe "The Recent Advances in Surgical Anesthesia."

BERLIN

(From Our Regular Correspondent)

Nov. 2, 1931.

Modifications in Hospital Construction

The economic crisis has brought about marked retrenchments wherever it has been possible. In Berlin three hospitals have been closed entirely; in others, certain departments have been abolished. Nevertheless, in the opinion of many persons, there is need of a private hospital for the middle class, with moderate prices. Hence, in spite of the stress of the times, born of a certain courageous, optimistic spirit, a 100-bed hospital (landhausklinik) has been erected in Wilmersdorf (near Berlin) by the Vaterländischer Frauenverein, affiliated with the Red Cross Society. The new institution combines in a practical arrangement and with pleasing architectural features three functions in three partially separated buildings: the clinic, the aerztehaus and the nurses' pavilion. The aerztehaus, for the accommodation of the fifteen physicians on the staff, forms a right angle with the clinic building. At the apex of the angle are the entrances, the staircases, the elevators and the administration offices, so that, aside from the soundproofing, which was carried out with great care, all the essential noise-makers of the whole building are concentrated in one corner. The clinic comprises sixty rooms of uniform character, all provided with balconies toward the south and roll-back windows, in three parts, extending to the floor (for fresh-air treatment and the like). Perfect technic in the service of health is combined with comfort, which is accomplished through the shape of the rooms, the color scheme and the furnishings. The culinary department is managed by a well known restaurant chain, under medical supervision (an excellent innovation). For all the prescribed diets special menus are presented for the patient's choice, without the normal charges fixed by contract being exceeded. The clinic is managed from a caritative point of view on a nonprofit-sharing basis and is thus not a private sanatorium in the ordinary sense; nor is it a hospital but is in a class by itself. In a period of social readjustment, which in its destructive phase is not yet completed, this institution is a good idea brought promptly to realization, which will bring aid and hence encouragement to the middle class, which is at present most endangered. At the same time the cost per bed, including the building costs for the clinic, nurses' pavilion and the aerztehaus with all its furnishings, was under $2,000.

Giessen, together with its university, has likewise accomplished wonders. In spite of the enormous difficulty in procuring funds, an orthopedic university clinic, which was urgently needed, has been supplied and has been recently opened. The clinic, which is under the directorship of Professor Pitzen, was built by the Hessischer Fürsorgeverein für Krüppel, which collected the money for the institution, one may say, a penny at a time, and placed it at the disposal of the university to be used for purposes of instruction and research. It has a sickroom section and a therapeutic section. The sickroom section is one-storied and is designed for seventy sickbeds, although there is enough space for a hundred beds, in case of need. The southern front of the sickrooms consists almost entirely of windows, all of which can be opened wide. The sickrooms are connected with the therapeutic section by a structure 21 meters long (likewise enclosed) which houses the medical baths and the gymnasium and serves at the same time as an auditorium. The gymnasium is connected by wide glass doors with a large campus, which is used for various athletic purposes. On the same plane as the sickrooms and the gymnasium is the first story of the therapeutic section, in which are the rooms of the administration, the policlinic, the x-ray room, the operating rooms, the workshops and the laboratory. The location of a portion of the workshops between the consultation room and the operating rooms is based on the desire to assure the absolutely necessary close connection between the physician and the orthopedic mechanics. All the rooms designed for patients lie on the same plane. The patients are not harassed by staircases, inclined planes or elevators. On the second floor of the therapeutic section are the rooms for the personnel, and in the basement are the culinary department, the heating equipment and further workshops. The total cost of the building was 350,000 marks ($83,300), or nearly $1,200 per sickroom.

Otto Warburg, Nobel Laureate

For his discoveries in regard to the nature and the mode of action of the respiration ferment, the Nobel prize in physiology and medicine, for this year, has been awarded to Otto Warburg, who is director of the Kaiser-Wilhelm-Institut for cell research in Dahlem (near Berlin), which was recently established for him by the Rockefeller Foundation. He is one of the most original investigators in the field of the chemical processes in the living cell. He was the first to demonstrate the decisive influence of the great surface development on the cell processes and studied out the biologic aspects of the notion of surface catalysis. He invented an exact precision method for the determination of the metabolism of the cells under various conditions—more particularly, of the oxygen intake of the cells, cell respiration and sugar decomposition in the cell without oxygen. Warburg opened up thereby a new outlook for the theory of cell metabolism and particularly of cell respiration.

Warburg's most important researches are in the field of the physiology of tumors and the mechanism of biologic oxidations. As for tumors, and especially the so-called cancer cells, he has demonstrated that these, in contradistinction to the normal body cells, are relatively independent of the available supply of oxygen; that is to say, that they have a metabolism without oxygen. Whereas normal animal cells die quickly in the absence of oxygen, the cancer cell can without oxygen continue to exist, to grow and to proliferate. Even when oxygen is available, it continues its oxygenless metabolism, the sugar decomposition, the same as yeast. Warburg developed from these observations a theory of the origin of tumors, in which there is certainly an element of truth. His contributions on the mechanism of cellular respiration are exceedingly important. He demonstrated that in every breathing cell there is a special oxidizing system—a respiration ferment, which activates the available oxygen material; that is to say, converts it into active oxygen. This respiration ferment he defined more precisely as an iron-containing organic dye, which closely resembles the hemin of the hemoglobin but is not identical with it. He was therefore the first to recognize with certainty the long suspected connection between iron in the cell and oxidative metabolism. The action of the respiration ferment is checked by hydrocyanic acid, so that the cell dies, which explains the exceedingly high toxicity of cyanogen compounds. He showed furthermore that iron also plays a part in the fermentation. More recently, he has announced the results of experiments that prepare the way for the harmonization of his respiration theory with the apparently entirely opposed theory of Heinrich Wieland of Munich, who was awarded, a few years ago, the Nobel prize in chemistry. Warburg is a theoretician and is a master of the chemical and the physicochemical method of research. He is an experimenter of the first rank and makes use of his mastery of method for his researches on the most difficult life processes.

VIENNA

(From Our Regular Correspondent)

Oct. 31, 1931.

Sudden Deaths of Eminent Physicians

During the past week, several eminent members of the medical profession in Vienna have died suddenly. First, Dr. Foramitti succumbed to a cerebral hemorrhage in a taxicab. He was the director of the Austrian ministry of health, also the Austrian delegate to the international health commission of the League of Nations, and the head of the hospital administration of our republic. His death, at the age of 58, is a great loss for the public health administration in our country.

The second death was that of Prof. Dr. Constantin Economo, the widely known investigator in neurology and brain research. This versatile scientist died in the midst of active service. He was the founder of the recently established laboratory for brain research in Vienna. In 1917 he became known throughout the world through his first published comprehensive description of epidemic encephalitis, which he observed in soldiers in the Vienna hospitals. His second important publication was an atlas of the cellular structure of the brain, in the form of 112 magnificent plates—a monumental work that required thirteen years (1912-1925) to complete. A second part, an atlas of the fibrous structure of the brain, had not been completed at the time of Economo's death. The deceased, an assistant of the Nobel laureate Professor v. Wagner-Jauregg, was asked to assume the directorship of the Klinik für Psychiatrie und Nervenkrankheiten, as the successor of his teacher; but he preferred to complete his researches on the brain, without being hampered by the duties of a clinical teacher. In connection with the organization of the first International Neurologic Congress of the postwar period, which was held in September of this year, Professor Economo, although in poor health, overexerted himself, which was possibly one reason for his unexpected death.

The third death was that of Dr. Arthur Schnitzler, the poet-physician. By his dramas and psychologic novelettes, significant through the intuitive feelings of the characters, and in which he anticipated the psychoanalytic researches of Freud, he was at an early age diverted from his medical practice; but in all his literary productions he gave abundant evidence of his medical training, especially as a psychoanalyst.

While this letter was being written, news came that the eminent roentgenologist Prof. Guido Holzknecht had died as a martyr and victim of his profession. He had suffered for years from carcinoma, which, some time ago, necessitated the amputation of several fingers of each hand. Six months ago, his right arm had to be amputated. There developed, however, soon afterward a carcinosis of the skin of the thorax, with metastases in the abdomen, which hastened the end. Holzknecht was one of the first to recognize the significance of Roentgen's discovery for the progress of medicine. With his keen insight, he was able to separate the essential from the insignificant and to utilize it for research and diagnosis. Roentgen's discovery dates back to 1895. Six years later, Holzknecht published his "Atlas der Erkrankungen des Thorax," which gives evidence of his genius and his almost prophetic insight. Soon afterward he published his articles on "The Roentgenologic Diagnosis of Disorders of the Digestive Apparatus." Of great importance was his construction of the dosimeter for the measurement of the dosage of roentgen rays, which made possible the general use of the rays for therapeutic purposes and is known everywhere as the H instrument. This great medical achievement goes back to 1902. The Holzknecht unit is still employed. Holzknecht's importance as a creative guide was soon recognized, and, in spite of bureaucratic obstructionists, he succeeded in organizing the Central-Röntgen-Institut in the Vienna General Hospital and to make it one of the greatest institutes of the kind. Here a Holzknecht "school" developed, from which countless promising pupils have gone forth to occupy prominent positions in all parts of the world. From here have gone out the methods for the location of foreign bodies (projectiles), and the diagnosis of gastric cancer, kidney stones and cranial disorders. Holzknecht's fame was greater abroad than at home. He was generally regarded as the leading figure in roentgenology, and his work on roentgen injuries is a classic. The tragedy of his life was that he was doomed to die from such injuries. Thirty years ago, before he had invented his dosimeter, he observed in himself the first signs of roentgen "burns." His long-drawn-out illness did not, however, prevent him from continuing his research.

Inaugural Lecture of Prof. Dr. Denk on Cancer

Dr. Denk, the newly appointed professor for the first chair of surgery at the University of Vienna and the successor of Professor Hochenegg, began his lectures with a comprehensive inaugural address, delivered before a large audience composed of professors and students, on "The Modern Methods of Combating Cancer." After paying respect to his predecessor, he emphasized that his predecessor's chief care was the study of neoplasms. Continuing this tradition of the Vienna "school," he stated that he would likewise regard the combating of cancer as a most important need, in order that the continuity of the work of Professor Hochenegg might not be interrupted. The chief needs looking toward the cure of cancer are early diagnosis and early operation, the combating of recurrences, and the detection of persons who are threatened with cancer. To this category belong patients with precancerous disorders, subjects with hereditary tendencies to cancer, twins one of whom has already developed cancer, and the like. Periodic examinations with a view to prophylaxis are quite in order, which imposes an important rôle on the family physician, especially if it should prove possible to perfect the tests for cancer that are now available. In Graz (Styria), where Professor Denk has served as director of the clinic, he made use of the existing welfare services and applied control tests to persons operated on, thereby building up an organization that achieved favorable results. Periodic health examinations may become valuable as a means of promoting early diagnosis and treatment. On the other hand, postoperative supervision by welfare workers is an important measure to combat recurrences in season. Dr. Denk elaborated in Graz many new operative methods, which have made the operation on cancer much easier and more effective. Likewise radium treatment will contribute in great measure to an improvement in the operative results. With reference to the bloodless methods, the clinic must carry out just as careful researches, which (for the time being, at least) should be based chiefly on animal experimentation and on observations and use as postoperative treatment. In any event, Professor Denk expects from these researches, especially from the prophylactic side, great progress. A center for the detection of all cancer patients in Vienna is, in his opinion, an absolute necessity, in order to detect early recurrences, which should be treated, for the most part, by bloodless methods; but without the cooperation of the general practitioners such supervision would be impossible.

TURKEY

(From Our Regular Correspondent)

Ankara, Oct. 21, 1931.

Fourth National Medical Congress

The fourth biennial national medical congress recently convened in Ankara and was attended by more than 400 physicians from all over the country. Following the opening address, in which Ismet Pasha, prime minister, referred to the reports on nutrition as important subjects for discussion, Prof. Dr. Refik, minister of health and social assistance, who presided, addressed the congress. Prof. Dr. Server Kamil of the medical faculty of the department of hygiene reported on nutrition in cities, and Dr. Zeki Nassir on investigations into the question of nutrition in urban and rural communities. Prof. Dr. Kadri Rashit Pasha of the department of pediatrics discussed infant feeding, and Dr. Hamit Osman spoke on nutrition of the preschool child and of children of school age. Dr. Ali Shukri read a paper on the pathogeny, prevention, treatment and incidence of rickets in Turkey and Dr. Murat Ibrahim on the orthopedic and surgical treatment of rickets.

NUTRITION AND DIET IN TURKEY

In the report on nutrition and diet in cities in Turkey, Dr. Server Kamil suggests the establishment of cooperative agencies by means of which a good food supply may be insured at low cost. He recommends also that organizations concerned with the establishment of soup kitchens for the poor broaden their activities, that food inspection in cities be more severe, that food prices be standardized, and the public be educated in matters of food and nutrition and that, in particular, the bread, meat, milk and water supply of cities receive more attention. Owing to the scarcity of fresh milk, the import of all brands of evaporated, powdered and condensed milk is growing from year to year. He stated that pasteurized milk is not even in Istanbul available to the public and that the per capita consumption of milk in that city is 42 Gm. a day.

The report on the investigation into the question of nutrition in urban and rural communities revealed that from 70 to 90 per cent of the diet of the rural population in Turkey is of vegetable origin, and that the chief nourishment of the peasant is "bulgur," whole wheat which has been soaked previous to boiling and is then dried in the sun and coarsely pounded on a hollow stone. This serves for the preparation of soups and pilav. Country bread is made of wheat, rye, millet, barley and corn mixtures, from which, owing to the use of primitive implements, the bran has not been removed. An important fact is that the intake of animal protein of the rural population is most inadequate and that only mutton is used and no pork whatever; the latter is on sale only in large cities, such as Istanbul and Izmir. The peasant as a rule partakes of meat on rare occasions, only such as the Bairam days, the sacrifice offered being a lamb; or on the occasion of the celebration of a wedding party, or in case of an accident that makes it necessary to kill an animal. The demand for eggs in cities causes eggs to be more and more a luxury among the rural population; eggs in villages are as a rule now served only to guests. Butter, so important an article of diet though solely a country product, is also, for economic reasons, rarely consumed by the producer. A considerable part of the rural population, especially in eastern and central Anatolia, does not know how to grow green leafy vegetables but includes in the diet raw onions, tomatoes, garlic, wild grasses and herbs, the knowledge of which has been handed down to them by their forefathers. Of fruits the peasant eats only those which grow in his particular village: the largest proportion is sold raw or dried. The antiscorbutic lemon is something never used in the peasant household.

What the peasant brings home in his bag from the city is sugar, salt, tea and coffee, which he values highly. Almost every peasant family owns a cow, a goat or a sheep. The rural population, however, does not drink milk, as it is turned into butter for sale, but of sour milk, or yoghurt, ample use is made in the diet. Sugar, a precious article, is seldom used for sweetening foods; as an addition to bread, honey or "pekmez," a nonfermented preparation of grapes, is used. While rice occupies an important place in the preparation of the city diet, its use is rare in rural communities. The peasant engaged in farm work takes a heavy breakfast before sunrise, a light lunch in the field, and a heavy supper in his home after sunset. A great number of city people do not take any breakfast at all or only a light one, but they take a heavy lunch and supper.

According to the geographic and climatic conditions and those of transportation and prosperity, five distinct zones in relation to diet in rural communities become obvious: the Black Sea coast, western Anatolia, the Mediterranean and southern provinces, and those of eastern and of central Anatolia. As the geographic condition of the Black Sea coast does not permit of the growing of wheat, corn bread is used there almost exclusively, and the oil of hazelnuts is utilized for the preparation of foods. Olive oil is not used by the inhabitants of eastern, central and southern Anatolia, but in western Anatolia and especially in the Mediterranean provinces ample use is made of it as well as of cottonseed oil, and, in the region where opium is cultivated, poppy oil is given preference over any other fat. In central Anatolia, sesame oil is used. Arabian influence in dietary habits, such as the use of highly spiced food and of raw meat, is noticeable in the southern provinces, while in the eastern provinces Russian, Caucasian and Persian influence is noticeable.

Of the deficiency diseases, ophthalmia and beriberi seldom occur, though some cases of pellagra are known to have come under observation. Because of the absence of iodine in water and food, endemic goiter prevails in some regions; scurvy is rare, and, owing to plenty of sunshine almost the year round, the incidence of rickets in rural communities is small. In the light of the newer knowledge of nutrition, the dietary habits of the rural population, which constitutes three fourths of the whole population, are deplorable; the existing conditions are largely due to established habits, ignorance and poverty. Absence of cheap transportation plays a large factor in the great difference between the dietary habits of urban and of rural communities. The most important aspect in regard to the problem of nutrition in rural communities is that the state of affairs so affects the constitution of the rural population that each generation has a lowered resistance to disease and is particularly susceptible to tuberculosis.

Prof. Tevfik Salim Pasha suggested that, among growing children unable to get the required amount of food, the sport activities in schools should be restricted; that the institute of hygiene now nearing completion take a lead in the education of the public in matters of food and nutrition, and that diet kitchens in connection with hospitals be established. Dr. Fahreddin Kerim stated that, much to the detriment of the population, alcohol had lately found its way into rural communities. Dr. Abdulkadir Lutfi recalled the deficiency diseases in the army during the World War and stated that today the conditions in relation to proper food were satisfactory. Dr. Ali Shukri reports that the difference in the incidence of rickets in urban communities (from 20 to 30 per cent) and in rural communities (from 5 to 10 per cent) is probably due to the fact that, winter and summer, the country children are out in the open almost all day.

Communications were read on such subjects as calcium metabolism, rickets and roentgen treatment, foreign bodies in the stomach, treatment of tuberculosis by artificial pneumothorax, lymphogranuloma, kidney stones, surgical treatment of stomach ulcers, the malaria campaign in Turkey, encephalitis following vaccination for scarlet fever, combined scarlet fever and diphtheria vaccine, simultaneous bilateral artificial pneumothorax, blood groups, new surgical treatment for old dislocations of the hip joint, hookworm eradication, ringworm in Turkey, food poisoning through Gärtner's bacillus, thymus tumors, suicides in Turkey, treatment of tetanus by suboccipital injection, treatment of diphtheria, thoracic and abdominal measurements in relation to the general development of infants, hemorrhage of the brain due to blackwater fever and to malaria, the method of early diagnosis in tuberculosis of the lung, and the Friedman vaccine.

A tea given at the model farm of the Turkish president marked the close of the three days of the congress. Prof. Dr. Refik, minister of health, was again asked to preside over the congress, at which intestinal parasites, amebic dysentery and mineral waters in Turkey will be discussed.

BUDAPEST

(From Our Regular Correspondent)

Oct. 31, 1931.

A Sign of Supermaturity of the Fetus

At a recent meeting of Hungarian gynecologists, Dr. Francis Szello read a paper entitled "A Sign of Supermaturity of the Fetus." He said that in his investigations he started with the physiologic fact that of the carpal bones the first to appear are the capitate and hamate; this is proved by the lime nucleus which is found at necropsies and by roentgenograms. These nuclei are never found in so-called mature infants born at the end of a regularly carried out gestation. They appear at the earliest in the second half of the first month of extra-uterine life, and at the latest in the sixth month. From this, he concludes that if, at the time of birth, both or one of these nuclei is present, the fetus is supermature. This is at present, he says, the only sure sign of supermaturity that can be easily shown on roentgenograms. If present, it is absolute proof, while its lack is not contradictory to supermaturity.

Harmful Effects of Iodine Injections Given as Abortifacients

According to Prof. J. Frigyessi, the rapid increase in the number of criminal abortions and the inflammatory diseases which they cause plays an important part in the great number of cases of sterility and extra-uterine pregnancy observed in late years. In one group of cases he blamed the action of intra-uterine iodine injections, used for provoking abortion. At the meeting of the medical society he reported two cases, in both of which violent cramps followed iodine injections; subsequently sterility, lasting for years, and finally extra-uterine gravidity resulted. In both cases he found knots, the size of a bean, in the uterine end of the tubes; the histologic preparations which he demonstrated showed in both cases a circumscript adhesion of the mucous membrane folds of the tubes, caused by the caustic action of tincture of iodine. The treatment consists in the excision of the knots and the restitution of the continuity of the tube by its implanation. But more important is the prophylaxis by the avoidance of intra-uterine iodine injections.

Marriages

Robert Hardin Hackler, Jr., Asheville, N. C., to Miss Harriet Gresham Bates of Richmond, Va., November 20.

Mac M. Dickman, New York, to Miss Dorothy Kaufman of Westmount, Montreal, Que., Canada, October 11.

Albert Welker Collins, Anderson, Ind., to Mrs. Janet McKenzie Dovey of Ottawa, Ill., November 14.

Walter Orthner, Huntingdon, Pa., to Miss Lee Katherine Strohacker of Philadelphia, October 31.

Rufus Preston Sykes, Asheboro, N. C., to Miss Blanche Lentz of Winston-Salem, November 7.

Elam A. Drum to Miss Mattie Elizabeth Walker, both of Richmond, Va., October 24.

Herbert C. Schlosser to Miss Lucille Short, both of Elkhart, Ind., November 14.

Frank Victor Theis to Miss Hazel Ericsson, both of Chicago, December 9.

Joseph Coates, Galax, Va., to Miss Ada Lee Cannaday of Pulaski, October 30.

Deaths

Charles Edward Dowman ⊕ Atlanta, Ga.; Johns Hopkins University School of Medicine, Baltimore, 1905; member of the Southern Surgical Association, Associated Anesthetists of the United States and Canada, American College of Surgeons, Society of Neurological Surgeons, American Neurological Association and the Association for Research in Nervous and Mental Diseases; professor of pathology, Birmingham Medical College, 1911-1913; associate in surgery, University of Alabama, 1913-1915; instructor, associate and assistant professor of surgery, Emory University School of Medicine, Atlanta, 1915-1924; served during the World War; neurologic surgeon to the Scottish Rite Hospital for Crippled Children, Grad Memorial Hospital, Georgia Baptist Hospital, Piedmont Hospital and the Henrietta Egleston Hospital for Children; aged 49; died, November 14.

Walter Aikman Sherwood ⊕ Brooklyn; Columbia University College of Physicians and Surgeons, New York, 1896; member of the American Surgical Association and the American College of Surgeons; served during the World War; aged 55; consulting surgeon to the Methodist Episcopal Hospital, Brooklyn, and the Eastern Long Island Hospital, Greenport; director of the department of surgery, Brooklyn Hospital, where he died, November 21, following an operation for appendicitis.

William Columbus Cox, Everett, Wash.; Jefferson Medical College of Philadelphia, 1885; member and past president of the Washington State Medical Association; member of the American College of Surgeons; member of the state board of medical examiners, 1900-1903; formerly mayor of Everett; honorary president of the staff of the General Hospital of Everett; aged 73; died, September 25.

Albert Ellis Douglas ⊕ Nashville, Tenn.; University of Tennessee Medical Department, Nashville, 1892; member of the American Psychiatric Association; proprietor of a sanatorium bearing his name; formerly superintendent of the Central State Hospital; aged 65; died, November 15, in Oklahoma City, of pneumonia following an operation.

Ulysses Grant Souder ⊕ Auburn, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; aged 65; medical superintendent of the Dr. Bonnell M. Souder Hospital, where he died, November 24, of Vincent's angina, pneumonia and acute lymphatic leukemia.

Summerfield J. Miller ⊕ Madera, Pa.; Medical Department of the University of the City of New York, 1886; state senator, 1914-1922; formerly bank president; aged 72; died, November 10, in the Mercy Hospital, Altoona following an operation for hypertrophy of the prostate and myocarditis.

Herbert Thomas Penny, Cliftondale, Mass.; Central College of Physicians and Surgeons, Indianapolis, 1889; Columbian University Medical Department, Washington, D. C., 1896; member of the Massachusetts Medical Society; aged 68; died, November 19, of coronary occlusion and arteriosclerosis.

William Judson Lamson ⊕ Summit, N. J.; Columbia University College of Physicians and Surgeons, New York, 1896; medical superintendent of the schools in Summit; aged 60; on the staff of the Overlook Hospital, where he died, November 28, of perforated ulcer of the duodenum.

Max Beegel, New York; Columbia University College of Physicians and Surgeons, New York, 1908; member of the Medical Society of the State of New York; on the staffs of the Jewish Memorial Hospital and the Gouverneur Hospital; aged 45; died, November 24.

William Lee Samuels ⊕ Reno, Nev.; University of Louisville (Ky.) School of Medicine, 1897; past president and secretary of the Nevada State Medical Association; on the staff of St. Mary's Hospital; aged 57; died, November 1, of acute yellow atrophy of the liver.

Benjamin Richard White, Rochester, N. Y.; New York Homeopathic Medical College and Hospital, 1899; member of the Medical Society of the State of New York; on the staff of the Genesee Hospital; aged 55; died, November 13, of pneumonia.

Samuel P. Sesmer, Louisville, Ky.; Imperial Jurjev University, Russia, 1894; member of the Kentucky State Medical Association; aged 62; died, November 9, in the City Hospital, of chronic nephritis, uremia, bronchopneumonia and arteriosclerosis.

Ulysses Grant Poland ⊕ Muncie, Ind.; Medical College of Indiana, Indianapolis, 1895; formerly city health officer and county coroner; on the staff of the Ball Memorial Hospital; aged 66; was found dead in bed, November 11, of heart disease.

Claude Addison Tallman, Maumee, Ohio; Northwestern University Medical School, Chicago, 1900; served during the World War; aged 53; died, November 21, in the Flower Hospital, Toledo, of injuries received in an automobile accident.

Geoffrey Joseph Fleming ⊕ Ontario, Calif.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; member of the American College of Surgeons; aged 58; died, October 9, of pneumonia.

Eddie De Baun Thixtun, Gosport, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1898; member of the Indiana State Medical Association; aged 63; died, November 21, in the Methodist Episcopal Hospital, Indianapolis.

John F. Shoemaker, St. Louis; Medico-Chirurgical College of Philadelphia, 1893; member of the Missouri State Medical Association, and the American Ophthalmological Society; aged 63; died, November 21, of cerebral hemorrhage.

Robert Woodworth Bell, Jr., Walla Walla, Wash.; Albany (N. Y.) Medical College, 1892; member of the Washington State Medical Association; connected with the U. S. Veterans' Bureau; aged 61; died, November 13.

James Ellis Brayshaw, Wilmington, Del.; Jefferson Medical College of Philadelphia, 1920; member and formerly secretary of the Medical Society of Delaware; aged 34; died, November 18, in the Homeopathic Hospital.

Claude Bertrand Cole ⊕ Toledo, Ohio; Long Island College Hospital, Brooklyn, 1889; University of Pennsylvania School of Medicine, Philadelphia, 1893; aged 65; was found dead, November 22, of cerebral hemorrhage.

Samuel W. Latham, Eldorado, Ill.; St. Louis College of Physicians and Surgeons, 1901; formerly mayor of Eldorado and state senator; aged 53; died, November 1, of pneumonia, as the result of an injury received in a fall.

Charles W. Felix, Martwick, Ky.; University of Louisville School of Medicine, 1890; member of the Kentucky State Medical Association; died, November 18, in the Methodist Episcopal Deaconess Hospital, Louisville.

George Blythe Morris ⊕ Goldsboro, N. C.; University of Maryland School of Medicine, Baltimore, 1910; aged 47; on the staff of the State Hospital at Goldsboro, where he died, November 15, of pulmonary tuberculosis.

Edwin Joseph Reeves, Princeton, N. J.; Tulane University of Louisiana Medical Department, New Orleans, 1893; member of the American College of Surgeons; aged 62; died, November 22, of endocarditis and arthritis.

Carlos M. White ⊕ Visalia, Calif.; Rush Medical College, Chicago, 1901; past president of the Tulare County Medical Society; on the staff of the Kaweah Hospital; aged 59; died, in November, of arteriosclerosis.

John Richard Williams, Carrollton, Ohio; Bellevue Hospital Medical College, New York, 1881; formerly county coroner and member of the board of education; aged 73; died, November 23, of heart disease.

Frederick Barrett, Gilbert, Minn.; Rush Medical College, Chicago, 1897; served during the World War; for seventeen years mayor of Gilbert; aged 56; was found dead in bed, November 4, of heart disease.

Atlee Mairs, Charleston, W. Va.; Jefferson Medical College of Philadelphia, 1910; member of the West Virginia State Medical Association; aged 48; died, November 14, of a self-inflicted gunshot wound.

John T. Harris ⊕ Tonawanda, N. Y.; University of Buffalo School of Medicine, 1883; for many years health officer and medical school inspector; aged 75; died, November 21, of coronary thrombosis.

Omar H. Tudor, Kenton, Ohio; Miami Medical College, Cincinnati, 1875; member of the Associated Anesthetists of the United States and Canada; aged 82; died, November 11, in the McKitrick Hospital.

Joseph Omer Guimond, Chicopee, Mass.; School of Medicine and Surgery of Montreal, Que., Canada, 1889; also a druggist; aged 71; died, November 8, in the New Haven (Conn.) Hospital.

Joseph B. Gallagher, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1910; on the staff of the Montreal General Hospital; aged 47; died, November 25, of septicemia.

Wilbur Marchand Lilley ⊕ Brownsville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1899; aged 56; was found dead in bed, November 10, in California, of heart disease.

Albert Edward Mucklow, Brooklyn; Bellevue Hospital Medical College, New York, 1897; member of the Medical Society of the State of New York; aged 56; was found dead in November.

William Andrew Wilson, New York; St. Louis University School of Medicine, 1904; member of the American Urological Association; aged 52; died suddenly, November 28, of heart disease.

Carl Hattermann, Chicago; Rush Medical College, Chicago, 1886; member of the Illinois State Medical Society; aged 73; died, November 28, of lymphatic leukemia and gastric hemorrhage.

William Mason Green, Hastings, Neb.; Creighton University School of Medicine, Omaha, 1901; aged 56; died, November 8, in the Masonic Sanitarium, Bettendorf, Iowa, of carcinoma.

Willis Perry Woodard, Oak Park, Ill.; College of Physicians and Surgeons, Chicago, 1894; aged 72; died, November 22, of bronchopneumonia, cerebral hemorrhage and arteriosclerosis.

Edward C. Barstow, Washington, D. C.; Howard University School of Medicine, Washington, 1895; Spanish-American War veteran; aged 62; died, November 10, of heart disease.

Frank Arthur Zeller, Union City, Ind.; Ohio Medical University, Columbus, 1898; member of the Indiana State Medical Association; aged 61; died, November 14, in Visalia, Calif.

Edward W. Hawthorne, Gypsum, Kan.; University Medical College of Kansas City, Mo., 1894; member of the Kansas Medical Society; aged 77; died, November 17, of myocarditis.

Eugene H. Mohr, Alburtis, Pa.; Jefferson Medical College of Philadelphia, 1881; member of the Medical Society of the State of Pennsylvania; aged 74; died, November 12, of uremia.

William Loranzo Nuckolls, San Francisco; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; aged 65; died, September 25.

Charles Warren Weaver, Healdsburg, Calif.; Medical College of Ohio, Cincinnati, 1879; aged 77; died, September 10, in the Dante Sanatorium, San Francisco, of coronary thrombosis.

John C. McCandless, Chicago; Chicago Physio-Medical College, 1893; member of the Illinois State Medical Society; aged 66; died, November 30, of carcinoma of the bladder.

Daniel Brooks Stidworthy, Homer, Neb.; Sioux City (Iowa) College of Medicine, 1894; served during the World War; aged 65; died, November 14, of pernicious anemia.

John Thomas Wilson, Chicago; Meharry Medical College, Nashville, Tenn., 1895; aged 67; died, November 19, in the Dailey Hospital, of myocarditis and coronary sclerosis.

Edward Christian Rohrbach, Flat River, Mo.; American Medical College, St. Louis, 1908; aged 56; died, November 3, in St. Mary's Hospital, St. Louis, of sarcoma of the liver.

John George Moore Sloane, Holford, England; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1895; aged 58; died, August 24, of cerebral embolism.

Roy Ezra Sleppy ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1899; served during the World War; aged 56; died, November 10, of cardiac asthma.

Fred E. McKeeby, Olney Springs, Colo.; Medical Department of Omaha University, 1894; member of the Colorado State Medical Society; aged 61; died, November 12.

William Albert Lang, Long Beach, Calif.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1881; aged 67; died, September 9, of chronic myocarditis.

Joseph P. Dobbin, Quebec, Que., Canada: Laval University Faculty of Medicine, Quebec, 1902; on the staff of the Jeffrey Hale Hospital; aged 53; died, October 17.

Emil Gustave Reinert ⊕ Hartford, Conn.; Baltimore Medical College, 1895; aged 65; died, November 21, in West Hartford, of carcinoma of the lip with metastasis.

Leonard E. Stocking, Agnew, Calif.; St. Louis Medical College, 1876; superintendent of the State Hospital; aged 81; died, October 29, of chronic myocarditis.

Thomas K. Wissinger, Columbus, Ohio; Starling Medical College, Columbus, 1879; aged 71; died, November 19, of arteriosclerosis and cerebral hemorrhage.

James Weir Heddens, Pasadena, Calif.; Jefferson Medical College of Philadelphia, 1879; aged 74; died, November 8, of arteriosclerosis and chronic myocarditis.

Arthur Montgomery Pelton, Los Angeles; University of Michigan Medical School, Ann Arbor, 1866; aged 87; died, September 7, following a prostatectomy.

Victor T. Roth ⊕ Pottsville, Pa.; Medico-Chirurgical College of Philadelphia, 1891; aged 61; died, October 14, of cerebral hemorrhage and chronic nephritis.

William Laughlin Dunning, Newburgh, N. Y.; Bellevue Hospital Medical College, New York, 1892; aged 67; died, November 17, of cerebral hemorrhage.

William Boyd Secrest, Los Angeles; Ohio Medical University, Columbus, 1898; aged 62; died, November 2, of chronic myocarditis and coronary sclerosis.

John Willias Swetnam, Soldier, Ky.; Physio-Eclectic Medical College, Cincinnati, 1877; aged 80; died, October 5, of chronic interstitial nephritis.

Carl Henry Guess, Buffalo; University of Buffalo School of Medicine, 1880; aged 77; died, November 20, of diabetes mellitus and myocarditis.

Elbert D. Beckner, Hoxie, Kan.; University of Nashville (Tenn.) Medical Department, 1906; aged 53; died, October 20, of cerebral hemorrhage.

Robert Gideon Baxter, Caneyspring, Tenn.; University of Nashville Medical Department, 1885; aged 71; died in November of paralysis.

Henry Merrill Thompson, San Francisco; Jefferson Medical College of Philadelphia, 1906; aged 53; was found dead, October 20.

Leopold Gross ⊕ New York; University and Bellevue Hospital Medical College, New York, 1910; aged 48; died, November 10.

Henry M. Beatty ⊕ Trenton, N. J.; Jefferson Medical College of Philadelphia, 1885; aged 73; died, November 13, of heart disease.

George B. Roberts, Vanderbilt, Pa.; College of Physicians and Surgeons, Baltimore, 1886; aged 74; died, November 11, of nephritis.

James F. Brewer, Asheville, N. C.; Memphis (Tenn.) Hospital Medical College, 1899; aged 56; died, October 24, of myocarditis.

Payn Bigelow Parsons, New York; Albany Medical College, 1897; aged 59; was found dead, September 19, of heart disease.

Frank Charles Hood, Gold Run, Calif.; Hahnemann Medical College, San Francisco, 1884; aged 76; died, September 3.

Charles John Peirce, Los Angeles; Dartmouth Medical School, Hanover, N. H., 1885; aged 73; died, September 21.

Mary Jane Bearby, San Jose, Calif.; Homeopathic Hospital College, Cleveland, 1872; aged 87; died, September 3.

Ira H. Rea, Harbert, Mich.; Harvey Medical College, Chicago, 1898; aged 74; died, November 28, of pneumonia.

Alexander W. Shaver, West Hamilton, Ont., Canada (licensed, Ontario, 1877); died, October 2.

George Cryer Parker, Fort Smith, Ark. (licensed, Arkansas, 1903); aged 72; died, September 19.

M. M. Tubb, McMinnville, Tenn. (licensed, Tennessee, 1889); aged 75; died, November 24.

Joseph C. Hooten, Ellerslie, Ga.; Atlanta Medical College, 1893; aged 60; died, September 25.

Bureau of Investigation

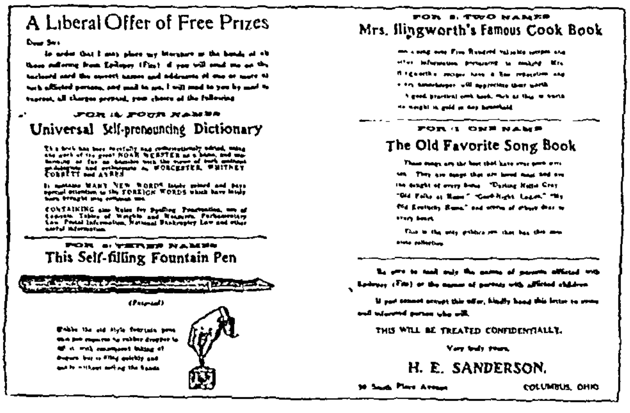
THE CONVERSE TREATMENT

A Columbus, Ohio, Concern That Sells an Alleged Epilepsy Cure

The Converse Company, which on its letterheads is described as "The Converse Treatment Company," operates from 30 Smith Place Avenue, Columbus, Ohio. The head of the concern is said to be one Herbert E. Sanderson who, if reports are to be believed, has been in the "patent medicine" business for about fifty years. Connected with Sanderson (according to the company's stationery) are Frank J. Dawson and Donald W. Dawson, with L. P. Jackson, M.D., as "Medical Referee."

Dr. Louis P. Jackson of Columbus, who has practiced at Delphoss and Van Wert, Ohio, was, according to the records, born in 1867 and holds a diploma from the Starling Medical College of Columbus for 1898. Dr. Jackson is not a member of his local medical society nor of the American Medical Association.

The Converse Treatment has been discussed in The Journal at different times, but the large number of inquiries received by the Bureau of Investigation from both laymen and physicians makes it desirable to bring again to the attention of the profession and the public the facts regarding this mail-order exploitation of epileptics.



A Liberal Offer of Free Prizes

FOR 4 FOUR NAMES

Universal Self-pronouncing Dictionary

This Self-filling Fountain Pen

FOR 2 TWO NAMES

Mrs. Illingworth's Famous Cook Book

FOR 1 ONE NAME

The Old Favorite Song Book

THIS WILL BE TREATED CONFIDENTIALLY.

Very truly yours,

H. E. SANDERSON.

30 South Place Avenue COLUMBUS, OHIO

Photographic reproduction (greatly reduced) of a two-page leaflet sent out by Sanderson of the Converse concern to officials of villages and small towns in an effort to obtain "sucker lists" of epileptics. The "mayor," "president of the city council," or "justice of the peace" to whom the leaflet is sent, is offered trivial bribes for the names of sufferers from epilepsy.

In the days before the passage of the Food and Drugs Act, the Converse Treatment was known as the "Converse Cure," and was described as "The only positive cure known, adopted and recommended by the leading physicians of the country." This statement, being one hundred per cent false, is no longer made by the company, although the implications in the 1931 advertising are almost as false and misleading. In the early days, the Converse nostrum was put out from Mount Vernon, Ohio, by a Mrs. Converse, who was said to have "discovered" the "cure." Although the company has for years claimed—and still claims—that its nostrum has been used by hospitals, sanitariums and physicians, no names or addresses are given to make a check-up on such claims possible.

Since the concern has been under the control of Sanderson, "sucker lists" of epileptics have for many years been obtained by sending broadcast to officials in rural communities a printed circular offering a small dictionary, a fountain pen, a cook book or a song book, free to those who will send a given number of names of epilepsy victims.

Of course, no information is given by the Converse concern regarding the composition of its product. In a booklet sent out at the present time, the public is told:

> "The Converse Treatment is prepared of the purest and most carefully selected herbs and medicines in its component parts, and with scrupulous exactness. Its distinguishing characteristic is the employment of a certain herb. This herb is gathered at a distance for the Converse Company at a particular season of the year and prepared for use in its laboratory. The Converse Treatment avoids entirely the powerful drugs known as Opiates, so often given for this trouble and is free from Alcohol, Morphine, Opium, Cocaine, Chloral, Heroin, Eucaine, Chloroform, Cannabis Indica, Acetanilid, or any of their derivatives."

The implication plainly is that the Converse nostrum is essentially herbs. Listing drugs that a "patent medicine" does *not* contain is an old trick in the business.

In the same booklet from which the quotation given above is taken, it is stated that the Converse Treatment has never been advertised in newspapers or magazines, but that the demand has "come entirely from results attained." The facts are, of course, the demand has actually come from those victims of epilepsy who have received the plausible and misleading "literature" of the Converse Company and whose names have been given the concern by those who are willing to furnish the contact at the price of a fountain pen or cook book.

As long ago as 1912, the Converse Treatment was analyzed by the late Senator E. F. Ladd, when he was the aggressive Pure Food Commissioner of North Dakota. Professor Ladd's report showed that the essential drugs in the Converse Treatment were the bromides. In 1915, the A. M. A. Chemical Laboratory, at the request of the Bureau of Investigation, made a thorough analysis of the Converse Treatment and the findings confirmed the earlier analysis of the North Dakota chemists. The A. M. A. Chemical Laboratory reported that from its analysis, it was evident that those who took the Converse Treatment in the dosage recommended obtained bromides corresponding to 58 grains of potassium bromide daily.

The Converse Treatment, quite obviously, has all the limitations and dangers of a bromide mixture.

TRIPLE L MEDICINE COMPANY

The Postal Authorities Declare Thomas N. Walker's "Syphilis Cure" a Fraud

In this department of The Journal for September 19, this year, there was published a brief story on the issuance of a fraud order against the West Medicine Company and Western Medical Clinic, exploited in Colorado. It was brought out in this item that the West Medicine Company was established in 1893 by one Charles West, the father of Amos C. West, who, at the time of the issuance of the fraud order, was the owner. A Dr. George D. Hoschouer had also operated the business prior to the acquisition of the concern by Amos C. West. Hoschouer conducted the concern under the name of the Western Medical Clinic, but when Amos West took it over, the name was changed back to the West Medicine Comany. The concern was selling through the mails two preparations, known, respectively, as *"909"* and *"Brigham Young Tablets,"* the former an alleged cure for syphilis and the latter an equally alleged cure for "lost manhood." Amos C. West, it was brought out by the federal authorities, had no medical training, but was, in fact, a chiropractor and a real-estate operator. On August 24, this year, the Postmaster General debarred the West Medicine Company and the Western Medical Clinic from the United States mails.

Now, the postal authorities have issued another fraud order directed against the Triple L Medicine Company and one Thomas N. Walker of San Francisco, Calif. Walker, it seems, is a linotype operator and has conducted, as a side-line, a piece of mail-order quackery known as the Triple L Medicine Company, operating the business from his residence. The man has no medical or pharmaceutical training. "Triple L," as Walker calls his nostrum, is the same product that was known as 909, sold by the West Medicine Company of Denver. When the Post Office authorities began investigating the Triple L Medicine Company, Walker admitted that his Triple L was the old 909 "cure" for syphilis. Chemical analysis by the federal authorities of this alleged cure showed it to contain 3½ grains of gold and sodium chloride to the ounce. This combination, of course, has no value whatever in the treatment of syphilis, and in fact, if taken over a long period, may produce very serious effects on the user. As a result of the investigation, the Hon. Horace J. Donnelly, Solicitor for the Post Office Department, recommended to the Postmaster General that a fraud order be issued against the Triple L Medicine Company and Thomas N. Walker, debarring these from the United States mails. Such an order was issued Dec. 3, 1931.

In this connection, it may be said that in May, 1929, the Bureau of Investigation of the American Medical Association received information from Dr. C. B. Pinkham, Secretary-Treasurer of the Board of Medical Examiners of the State of California, relative to the Triple L Medicine Company, which was, at that time, under investigation by the state authorities. It was brought out that associated with the Triple L Medicine Company, at that time, was one R. L. Stine, M.D., who, it was alleged, had formerly been connected with the Dean Pile Institute of San Francisco. When Stine was interviewed by the state authorities, he is said to have admitted that he did not know what were the ingredients of the Triple L Liquid, which he was advising patients to take.

Correspondence

DISTRIBUTION OF BROMIDES IN THE BODY

To the Editor:—Because of your interesting editorial on the distribution of bromides in the body (THE JOURNAL, October 17, p. 1152), I should like to call attention to an illustrative but apparently little known piece of work on this question. The work was published by Erik Wilén in the *Uppsala läkareförenings förhandlingar* **31**:*373, 1926*, and contains carefully performed bromide (Br^-) and chloride (Cl^-) analyses on different tissues from a man who died after having taken during three days a quantity of about 100 Gm. of sodium bromide. The death ensued about a week after the beginning of administration of the sodium bromide. Wilén calculates that about 50 per cent of the sodium bromide ingested remained in the body at the death. Like Toxopéus, he found the concentration of bromide (Br^-) in the brain as a whole less than in several other tissues; e. g., blood, lungs, heart, spleen. However, when different parts of the brain were examined separately, it turned out that the bromide concentration in the cortex cerebri was about twice as great as that in the basal nuclei, of the cerebellum and of the white substance. The bromide concentration in the cortex was indeed exceeded only by that in the blood. Wilén correlates these observations with the selective action of bromides on the cortex but points at the same time at the relatively great water content of the cortex as a conceivable, simple chemical explanation of its relative richness in bromide.

GUNNAR BLIX, Uppsala, Sweden.

TUBERCULOSIS AND FLORIDA

To the Editor:—This communication, while dealing more specifically with Florida, is applicable to other resort states and winter playgrounds.

It has come to the notice of physicians in Florida that a considerable number of persons with pulmonary tuberculosis of varying grades of involvement and activity are sent to this state during the winter months for the purpose of availing themselves of Florida's climate and sunshine. The reason for this is apparent. These patients want to get away from the cold and confining northern winters and want to enjoy an outdoor existence.

People have been educated to the value of sunshine; hence one of the alluring enticements is that they can take the "sun cure" on the beaches and enjoy the salubrious climate. The unfavorable feature of the expedition is that they are left to shift for themselves. If the home physician knows the value of controlled exercise and the danger of a break in the routine of living, the patient is asked to report to him by letter at certain intervals. In many cases no definite instructions are given, and the patient is told to "lie in the sun" and take plenty of milk and eggs.

The result is that the patient arrives and equips himself to enjoy the bathing beaches. He puts on a bathing suit and goes out to lie for a half hour or two hours on a sunny beach. This brings on a bad attack of sunburn with its attending fever and misery and perhaps a lighting up of a quiescent lesion. The patient may decide to take a car or bus trip to another part of the state—he wants to see Florida. He goes to an occasional night club or is a fairly regular attendant of the race tracks. His rest hours are forgotten. His regular retiring hours are a memory. In the spring he returns to his family physician with an extension of his lesion or perhaps a history of pulmonary hemorrhage, and the physician blames the Florida climate as being unsuitable for pulmonary tuberculosis.

If this patient had followed his routine of living as closely as when under the observation of his home physician, he would be more definitely benefited than if he had remained at home. Florida has a suitable climate for the treatment of tuberculosis, but no climate can overcome a regimen that would wear down a healthy man. Tuberculosis here as elsewhere must be treated rationally, and a person who has been under the guiding care of a physician at home should be supervised wherever he goes, whether it is Florida, California or Arizona. If physicians recommending Florida to their patients would insist that these patients put themselves under the care of a physician when they arrive, much benefit would be derived from such a sojourn away from home.

This communication is written primarily to the end that tuberculous patients be put under the supervision of physicians when they go to a winter resort and that the resort physician keep in professional communication with the medical adviser who recommended the trip.

W. A. CLAXTON, M.D., Jacksonville, Fla.
Tuberculosis Clinician, State Board of Health.

PURE AIR AND CLEAN STREETS EXHIBIT

To the Editor:—Lack of proper methods of street cleansing and of the removal of waste detracts from the appearance of the city and invites negligence on the part of the public. It carries in its trend more important consequences than unsightliness and the pollution of bay waters. The open garbage can is a feeding place for insects and rodents and thereby contributes indirectly to the transmission of many diseases of which flies, vermin and rats are carriers. Improper sweeping results in filling the air with dust, as does the practice of dumping ash cans into open carts. Other deleterious elements in the air one breathes in the city are the carbon monoxide from the exhaust of automobiles, the smoke and soot which come from the chimneys of buildings and from stacks of boats plying in the city waters, the mineral dust that comes from building operations and from the tearing up of streets, the cleaning of buildings by sand blasting, and other similar sources.

The New York Meteorological Bureau in New York City measures daily the amount of dust suspended in the air, and it was found that over the Central Park area, which is probably one of the most favored areas in the city, the amount of dust and soot suspended averaged 3.97 tons daily to the cubic mile of air, during 1930. On moist days this suspension creates a pall which deprives the city of much sunlight and, particularly, of ultraviolet rays. Aside from the injury to the eyes and to the air passages, which the impurities of the air create, the amount of economic loss caused, directly or indirectly, is considerable. According to the estimates made a great deal of coal and oil is being wasted by improper combustion, and the destruction of fabrics and household effects runs into hundreds of millions annually. As has been well said, excessive smoke is not a necessity but a luxury of laziness and indifference.

It is not only for the purpose of impressing on the public mind the menace to health of impure air and dirty streets that an exhibit will be held at the New York Academy of Medicine, 2 East One Hundred and Third Street, New York, under the joint auspices of the Academy Committee on Public Health Relations and the Committee of Twenty on Outdoor Cleanliness. It is being arranged primarily as an educational measure to stress the possibility of preventing this nuisance and health hazard. The exhibit, which will be open to the public, will begin Jan. 12, 1932, and continue for eight days. It will consist not only of graphs, charts, photographs, and various scientific instruments of precision used in measuring contamination, but principally of models of modern street cleaning apparatus, stoking devices, ventilating machines, and moving pictures depicting modern methods. In this endeavor the cooperation of the city, state and federal authorities is being enlisted, as well as that of scientific organizations and of the manufacturers of proper equipment.

Inquiries may be addressed to the undersigned as executive secretary of the Public Health Relations Committee, 2 East One Hundred and Third Street, New York.

E. H. L. Corwin, New York.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

USE OF POTENT LIVER MATERIAL IN PERNICIOUS ANEMIA

To the Editor:—I have a patient who has pernicious anemia and has been on the liver diet for four years, part of the time taking the extract. At present his red blood cell count is falling, despite the fact that he takes three vials of the extract a day. Cord changes are also developing rapidly. At present there is an extreme degree of irritability of the bladder and frequency of urination. At times the patient has tonic spasms of the legs. Please advise me as to whether anything can be done for the bladder or for the contractions in the legs. Please omit name.

M.D., Kansas.

Answer.—The treatment of pernicious anemia is not merely with liver or a potent substitute but with enough liver or potent substitute for the given individual case. A falling red blood cell count is a clear-cut indication for the patient to take much more potent material. It is naturally important to know that the patient is receiving a potent product. Progressive cord changes are also a clear-cut indication for the patient to receive much more potent material, no matter whether the red blood cells are present in normal or in decreased numbers.

Exactly how much potent material should be considered optimal for this case cannot be foretold. It would be wise to give the patient, by mouth, potent liver extract derived from not less than 1,000 Gm. of liver a day. The patient may have difficulty in absorbing or utilizing the product when given by the intestinal route, and if so an extract given parenterally may be of great advantage. Economically, it would be of advantage to administer a potent liver extract intramuscularly. Likewise, so that there would be no delay in having ample potent material enter the patient's body, it would be wise to give him daily intramuscular injections of at least 2 cc. (each cubic centimeter representing extract derived from 5 Gm. of liver) of a potent liver extract properly prepared for use in this manner.

It is important to remember that infections, such as pyelitis, can inhibit the action of the active principle effective in pernicious anemia, and it should be ascertained whether the patient has any infectious condition of the genito-urinary tract, and if so it should be treated appropriately. Symptoms referable to the bladder are prone to improve under treatment with an adequate amount of potent material.

Physical therapy frequently aids to decrease such symptoms as the patient has had referable to his legs. The most important thing to do, however, is to treat the patient with enough potent terial.

The following liver extracts for oral administration have been accepted for New and Nonofficial Remedies: Liver Extract No. 343 (Lilly), Concentrated Liver Extract-Armour, Liver Extract-Fairchild, Liver Extract-Lederle, Marine Liver Extract-White. Solution Liver Extract Parenteral-Lederle, proposed for intramuscular or intravenous injection, has also been accepted by the Council on Pharmacy and Chemistry.

TREATMENT OF THROMBOPHLEBITIS

To the Editor:—In view of repeated reports that ambulatory treatment of phlebitis complicating injection of the varicose veins is the method of choice, is there reason to believe that the time-honored treatment of infectious phlebitis by rest should be changed? Or, worded differently, do absolute rest and immobilization form the proper method of treatment for the average case of thrombophlebitis (not associated with varicose veins)? Please omit name.

M.D., Virginia.

Answer.—Thrombophlebitis in nonvaricose veins must be grouped into a deep and a superficial variety. Superficial thrombophlebitis, if it occurs in small patches and without elevation of temperature, is best treated with adequate elastic support and no immobilization. If it is of the ascending type, accompanied by a rise in temperature and a high white blood cell count, a high ligation of the saphenous vein results in an efficient barrier to the thrombosis. The patients are kept in bed only for a few days, until the pulse rate becomes normal, and may then get up, with adequate support.

The treatment of deep thrombophlebitis is one of the most neglected questions of the day. The object of rational treatment should be (1) to minimize the danger of embolism and (2) to combat from the start the persistence of edema, which will lead to irreversible changes in the tissues. There is a paradoxical relationship between the extent of the clot in the deep vein and the danger of embolism. The more extensive the deep clot is and the more pronounced the "milk leg," the smaller the percentage of lung infarcts and fatal pulmonary emboli seems to be, whereas the small, silent clots break loose more often and end fatally in patients who have no, or barely any, sign of venous obstruction. The rule of keeping these patients in bed for from four to six weeks is entirely arbitrary. A better, more rational plan is to watch the pulse and the white blood cell count and to permit some muscular action about ten days after the pulse has become normal. Any elevation of the pulse would necessitate further immobilization. The leg should be strapped from the toes to the thigh with an elastic bandage, which not only influences the edema but diminishes sudden rises of venous pressure during movements. Other methods of diminishing the acute edema are in the experimental stage.

An absolute immobilization of the patient is not necessary and, in fact, is not even possible. The patient, with leg splinted and lying flat on the back, does more straining with every bowel movement than a slight turning on the side or sitting up would produce. When one reads the interesting statistics of Kappis (*Deutsche Ztschr. f. Chir.* **223**:317, 1930), who reports 100 cases of deep thrombophlebitis treated merely by strapping, but in an ambulatory manner, with a resulting percentage of infarcts and fatal emboli which does not exceed the ratio in an immobilized group of patients, one must seriously wonder whether immobilization of deep phlebitis really prevents embolism at all. Until the question is settled on the basis of adequately controlled statistics, it seems safer to keep patients in bed without bathroom privileges, but not under strict immobilization. The loosening of the thrombus must be regarded more in the light of a chemical process, in which the present crude mechanical measures are yet utterly helpless.

POSSIBLE POISONING FROM LACQUER

To the Editor:—A college student, who came to my office complaining of weakness, nervousness and loss of weight, stated that he worked with lacquer for about six weeks this summer. The question arises whether this may have some influence on his condition.

Ara D. Sharp, M.D., Albion, Mich.

Answer.—Unfortunately, the term "lacquer" provides little information on which any opinion may be formed, in reply to this query. No less than thirty volatile substances may enter into lacquers, many of which are toxic. The number includes methanol, butanol, amyl alcohol, glycols, acetone, butyl acetate, amyl acetate, ethyl acetate, benzene, toluene, xylene, naphtha and lactates.

Lacquers may contain plasticizers of harmful nature, such as tricresyl phosphate, which is believed to be the agent responsible for "jake paralyses." Some lacquers are pigmented and thus open up the possibilities of harm from such agents as arsenic compounds and *para*-nitraniline. Without the intent of making a diagnosis, it is at once agreed that the manifestations mentioned may readily arise from the toxic action of some of the ingredients listed. Examination of the blood is a likely source of information as to the harmful action of benzene or its homologues, toluene or xylene. The best approach to exact facts lies in determining the precise content of the lacquer to which exposure was provided. With this information, special examination may then be made in keeping with the toxic action of the ingredients established. If the condition originated during or shortly after exposure, the lacquer is of far greater etiologic import than would be true if the condition developed with many weeks intervening between exposure and disability.

ULCERATIVE COLITIS — ENDAMOEBA HISTOLYTICA

To the Editor:—A white man, aged 43, well developed and fairly well nourished, had diarrhea and upper abdominal distress of intermittent character and of about eight months' duration. The past history is essentially negative. The patient is a welder and railroad mechanic. About one year ago he went to the oil fields of Kansas to help lay a pipe line. While there he was in good health, but the conditions in the camp and the water supply did not meet with his approval and he left. He was in good health for a short time following that trip, and then a diarrhea developed, which lasted about ten days. He did not have any fever or any malaise that he recalls. Since then the attacks of diarrhea have recurred with greater frequency, and in between he has had normal periods of good health. There has been a steady loss of weight, amounting to about 35 pounds (16 Kg.) in a year. For the past two and one-half months the diarrhea has been persistent, and he first noted the occurrence of the upper abdominal pain, which at first was spasmodic and transient in character, but occurred in the left upper quadrant and gradually has been going lower along the course of the descending colon. For about six weeks this has been more or less constant. The stools are watery with gross bright and dark blood present. At no time has he noted any fever. There has been loss of strength, and a noticeable increase in nervousness. On his initial visit, about three weeks ago, the physical examination was essentially negative except for the evidence of the loss of weight and the extreme nervousness. Blood examination was well within the normal limits and no leukocytosis or leukopenia was noted. The blood Wassermann test and urinalysis gave negative results. The lower end of the colon was markedly ulcerated and this seemed to extend up as far as could be seen on ordinary examination. The mucosa was congested and several small bleeding points were noted. Stool examination of the freshly passed specimen revealed a large quantity of blood, mucus and numerous ameboid organisms reported by the pathologist to be Amoeba coli. Nothing else of interest was noted. Roentgen examination revealed, at one time, marked retention of the barium in the stomach and a somewhat spastic condition of the lower bowel. On another occasion there was rapid emptying of the stomach and relatively the same condition of the lower bowel. No evidence of new growths was noted. The patient has been on high gelatin retention enemas and bismuth subcarbonate. There has been some amelioration of the symptoms and a slight improvement in the general condition. Would I be justified in making a diagnosis of colitis due to Endamoeba histolytica and in treating the case as such? Is there any substance less toxic than emetine to be used, and what mode of administration would prove most efficacious? A low residue diet of the accepted type is strictly adhered to, but no change has been noted in the stools. How large a factor is the nervous element in the progress of this case? Please omit name.

M.D., South Dakota.

ANSWER.—It would appear from the observations presented that the patient is affected with an ulcerative colitis. In addition to amebic colitis a bowel disease due to pernicious anemia, tuberculosis, metal poisoning, toxic thyroid infection (chronic ulcerative colitis as described by Bargen) or toxic colitis caused by working with or handling volatile oil distillates must be considered. Malignancy, sprue and pellagra appear to be unlikely etiologic agents but must not be discounted altogether. It is uncommon for a pure neurosis to cause a colitis accompanied by free bleeding.

The blood count is not stated; an eosinophilia would appear at some stage of the illness, were the cause Endamoeba histolytica. In view of the contradictory roentgen observations on the stomach, tests for acidity and mobility on the exhibition of a full, mixed meal are indicated.

If the colon lesions are due to Endamoeba histolytica, the proctoscopic study should reveal typical umbilicated ulcers, discrete or coalescing, and smears from the lesions, examined either on a warm slide or after staining by iodine or hematoxylin, should reveal characteristic protozoa.

The management consists in (1) absolute rest in bed; (2) warm compresses to the abdomen; (3) a warm, liquid and later semisolid, bland diet; (4) irrigations of the colon, from two to four times daily, with an abundance of physiologic solution of sodium chloride at 45 C., a temperature above the thermal death point of the ameba (Rivas); or, if ulceration and bleeding are of advanced degree, bowel irrigations with warm mercurochrome-220 soluble, 1:2,000; (5) the control of spasm and frequent painful movements, during the early days of management by the administration of 4 Gm. of bismuth subgallate in 60 cc. of hot water, after each bowel movement and four times daily, and of 65 mg. of powdered opium with 16 mg. of extract of belladonna; (6) amebacidal therapy: 32 mg. of emetine hydrochloride injected intramuscularly, three times a day and the dose being gradually increased by a half every second day, until, provided no depressing signs or symptoms are exhibited, 0.1 or 0.13 Gm. is being employed. Very few patients take the maximum dose without discomfort or signs of circulatory depression. If emetine is poorly borne, 0.15 Gm. of neoarsphenamine may be given intravenously daily or every other day, provided it is well tolerated.

Ipecac is considered an excellent amebacide. From 4 to 16 Gm. may be given in doses, progressively increasing, if the powdered drug is given in 0.32 Gm. keratin capsules or in pills well coated with phenyl salicylate (pinhole-free). On an empty stomach, from 1.3 to 2 Gm. of the powdered ipecac may be given three times a day, provided the patient remains in bed. He should lie on his right side after taking the medicine and drink from 60 to 120 cc. of hot clear tea. The pills then will pass rapidly from the stomach. Half an hour after the pills have been taken, thirty drops of camphorated tincture of opium in 60 cc. of hot sweet water tends to allay retching and vomiting. If pills or capsules of ipecac are poorly borne, from 8 to 30 cc. of tincture or wine of ipecac may be given through a duodenal tube directly into the jejunum. At times, from 30 to 90 cc. of wine of ipecac given by rectum after colon lavage, through a high colon tube, proves efficacious.

If ipecac in various forms and by various routes of exhibition is poorly taken, then, in association with hypodermic injections of emetine or neoarsphenamine, one of the newer arsenic compounds, as acetarsone, may be given: two pills daily for twelve days usually proves efficacious.

It should be remembered that Amoeba histolytica is prone to localize in structures communicating with the alimentary tract, appendix or gallbladder, and that in this event recurrences of bowel infestation may be prevented only after appendectomy or cholecystectomy. Even if the protozoan does not migrate to these accessory structures, its systemic spread to liver, lungs, testis and epididymis or bone marrow may call for the long-continued exhibition of emetine or neoarsphenamine. The constitutional effects of chronic amebiasis—absent hydrochloric acid, deficient pancreatic secretion, anemia—demand recognition and treatment.

WASSERMANN REACTION IN SYPHILIS UNDER TREATMENT — ANTISEPTIC PROPERTIES OF ARSPHENAMINES

To the Editor:—1. In "Clinical Syphilography," by Stokes, page 424, figure 246, is given the incidence of a positive blood Wassermann reaction in primary syphilis. As far as I can learn by careful search through the whole book, there is nothing said about the difference in incidence of a positive reaction in treated and in untreated cases, and the exact relation, if known, between the kind and amount of treatment and the Wassermann reaction. I am referring specifically to first degree syphilis. I have in mind a case of typical hunterian penile chancre, positive for spirochetes with the Giemsa stain. Three blood tests have so far been negative, and the chancre is now about three weeks old. According to Stokes, in the third week 68 per cent of chancres show a positive blood reaction. Am I to assume that my case is one of the remaining 32 per cent, or am I keeping the Wassermann reaction negative by my treatment? I have been using neoarsphenamine twice a week. 2. Is anything known about the general in vitro antiseptic properties of the arsphenamines? I have heard that some syphilologists use tap water for their arsphenamine injections and use it without sterilizing it. They claim no more reactions to the injection. Could it be that arsphenamine solutions are self sterilizing, as are those of the soluble mercurials? Please omit name.

M.D., New York.

ANSWER.—1. The inquirer is in all probability keeping his patient's Wassermann reaction negative by treatment with two neoarsphenamine injections a week. The figures given by Stokes refer to untreated syphilis and represent the gradual increase in proportion of positive reactions which takes place with the increasing age of the infection as the systemic reaction to the disease develops. The suggestion that there should be a study of the incidence of positive reactions as a form of progression in patients who are under treatment for an originally seronegative primary infection, presumably in spite of treatment, is at first thought astonishing, but deserves consideration. Such investigations have already been made, by Moore and Kemp, with reference to the rate at which the positive Wassermann reaction is reduced to negative in early syphilis under treatment (serologic gradient), and figures for the incidence of relapse in seronegative primary syphilis which, however, deal with clinical lesions and not with examination of the blood, have been given by Stokes and associates in Venereal Disease Information, volume 12, no. 2, Feb. 20, 1931, issued as reprint 29 by the

Bureau of Venereal Diseases, U. S. Public Health Service. No published statement with regard to the percentage development of positive blood reactions in originally seronegative primary cases under the influence of treatment seems to be available. It is well known, however, that this shift to positive, as a form of progression, does occur, and precautions should be taken to recognize the situation early in the course of the treatment by taking several blood tests at intervals of a week after the initial negative reaction, on the basis of which treatment was begun. Patients in whom such positive reactions subsequently appear are to be regarded as having fully developed infections, and should not be treated by an abortive or short-cut technic.

2. The general in vitro antiseptic properties of the arsphenamines are known, including their spirillicidal action, to a certain extent. These drugs in solution are not sufficiently powerful bactericides to justify any reliance on their self sterilizing properties. In the light of experience with modern technic, the use of tap water for arsphenamine injection without previous sterilization can only be regarded as reprehensible.

ALBUMINURIA AND INSURANCE

To the Editor:—A few days ago I had occasion to examine a school boy in apparently perfect health and found a small trace of albumin. The boy was examined by his family physician, who did not confirm my test. However, a few days later I found the same condition present again, and the observation was confirmed by the laboratory. Microscopic analysis showed 4 white blood cells to the high power field, no red cells, no hyaline casts, some shreds and small waxy filaments. What is the condition present and what effect, if any, should it have on his insurability? Please omit name.

M.D., New York.

Answer.—The data submitted are insufficient to afford any definite deductions. Evidently the albuminuria is not constant. It would therefore be advisable to determine whether it is postural or orthostatic by examining the urine passed in the morning after a night's rest. The absence of albumin at this time and its appearance after the patient has been active would suggest this condition. Nephritis can hardly be considered here unless the child has recently had an acute infectious disease with a renal involvement. Nephrosis is associated with large quantities of albumin, waxy casts and doubly refractive lipoid bodies in the urine, while glomerular nephritis is associated with small amounts of albumin, red blood corpuscles and hyaline casts. The presence of a few white blood cells in the urine, if constant, would suggest the possibility of some irritative process in the genito-urinary tract. Repeated examinations of the urine and a careful physical examination should be made and a temperature record kept, as the possibility of a chronic renal lesion or even a calculus without any subjective symptoms must be considered.

Formerly the tendency for insurance companies has been to refuse insurance to applicants with albuminuria. Several companies realize that transient or orthostatic albuminuria need not necessarily interfere with life and health and are now insuring the applicant with little or no rating up of the premium.

ALLERGIC SWELLINGS

To the Editor.—I have a patient, a woman, aged 39, married, who has had swelling, stiffness and some pain in the metacarpophalangeal and first interphalangeal joints of both hands for the past seven or eight years. These symptoms are most marked early in the morning and tend to disappear during the day. *They are much more pronounced for several days* preceding her menstrual periods and during the time of menstruation. The condition is not severe enough to be disabling but is annoying. The cervix was amputated ten years ago. She had a miscarriage nine years ago. The menses are scanty (two days) with considerable pain on the first day. The general physical condition is essentially normal. There have been no other pregnancies. Could there be any relation between the menses and the rheumatoid condition? Please discuss this case as to etiology and treatment. Please omit name.

M.D., Alabama.

Answer.—From the description of the transitory character of the swelling, tending to disappear during the day, the trouble is probably not inflammatory, as would have been the case if it were a rheumatoid arthritis. Furthermore, a chronic arthritis of the type described would almost certainly have led to some permanent deformity and restricted movement of the joint. The history indicates, rather, an angioneurotic edema. This receives further support from the greater intensity of the symptoms at the menstrual period, when the average woman is more nervous. It would be interesting to know whether the patient or her immediate relatives suffered from any allergic disease, as urticaria, hay fever, asthma or migraine.

In regard to treatment, it might be wise to make some food skin tests and then withdraw from the diet those foods to which the patient is sensitive. This treatment is based on the assumption that the trouble is allergic.

LEVULOSE

To the Editor:—Referring to the editorial in The Journal, October 24, page 1230, entitled, "The Absorption of Levulose," improved processes of production of this sugar are mentioned. Could you send to me references to recent articles describing these new processes?

Veader Leonard, M.D., Baltimore.

Answer.—A semicommercial plant capable of producing 50 pounds (22.7 Kg.) of levulose a day has been in operation at Iowa State College, Ames, Iowa, during the past year, using the Jerusalem artichoke as the raw material because of its many good features from an agricultural point of view. By drying the artichokes, many advantages are obtained, including the operation of the plant throughout the year.

A continuous precipitation process has been developed, yielding granular lime levulate, which may be easily filtered and washed. The preparation of crystalline levulose in good yields has been accomplished at ordinary temperatures (15 C.) without the use of refrigeration.

The history of levulose up to the year 1923 has been summarized by Harding (*Sugar* **25:**406, 636, 1923). Later investigations have been published by Jackson, Silsbee and Proffitt (*Indust. & Engin. Chem.* **16:**1250, 1924; Scientific Paper 519, 614, Bureau of Standards, 1926). The latest review including the entire literature of the subject will be found in a paper by McGlumphy and Eichinger (*Indust. & Engin. Chem.* **23:**1202 [Nov.] 1931).

NEED OF PERSISTENCE IN TREATING CONGENITAL SYPHILIS

To the Editor:—A boy, aged 15 years, unusually strong and well built and apparently in perfect health was accidentally found a year ago to have a four plus Wassermann reaction. There are none of the usual signs of hereditary syphilis nor is there any history of acquired syphilis. No family history is obtainable, as the boy was adopted when a baby and nothing is known about his parents. I have known him since he was 4 years of age and he has had no sickness during that time except an attack of measles. For the past year he has received intensive antisyphilitic treatment by a competent physician, but he still has a positive Wassermann reaction. Would you advise further treatment? Please omit name.

M.D., California.

Answer.—Treatment should be continued as intensively and constantly as the health of the patient permits. Congenital syphilis yields slowly in most cases. A careful examination of the nervous system and the spinal fluid is indicated.

USE OF VIOSTEROL DURING PREGNANCY

To the Editor:—Please advise me whether administration of irradiated ergosterol to pregnant women could cause a premature calcification of the fetal head, resulting in dystocia, with possibly damage later to the child.

Hallie Earle, M.D., Waco, Texas.

Answer.—There is no danger to mother or child from therapeutic doses of viosterol (irradiated ergosterol) given during pregnancy. In fact, such medication probably would be of advantage, owing to the excessive drain of calcium and phosphorus that takes place during this period. This medication is especially indicated in cases in which the intake of calcium compounds has been insufficient.

NONSURGICAL TREATMENT OF RECTAL PROLAPSE

To the Editor:—An elderly woman is suffering from a complete rectal prolapse of several years' duration. She refuses to have an operation. Can you suggest any measures or devices that would help to keep the prolapsed rectum in its normal position? Please omit name.

M.D., Wisconsin.

Answer.—There is no mechanical device known that will keep in place the prolapse of the rectum appearing in an old person. Careful attention to diet to give regular bowel movements; above all, avoidance of cathartics and, lastly, pressure on the prolapse with warm moist dressings after bowel movements, followed by light compression obtained by a T binder over the area, are the most important palliative measures.

HEART DISEASE FOLLOWING TRAUMA

To the Editor:—The answer in Queries and Minor Notes (The Journal, October 24, p. 1245) on "Heart Disease Following Blow Over Sternum" leads me to offer an additional reference; namely, Tuohy, E. L., and Boman, P. G.: Trauma to Viscera from Nonpenetrating External Injuries, with Special Reference to the Heart, *Ann. Int. Med.* **4:** 1373 (May) 1931. These authors discuss three cases of auricular fibrillation following such trauma. One case was personally observed and the others were reported in two separate papers in the literature. This article is well worth reading for information on this little known subject.

William D. Reid, M.D., Boston.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 11. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Clinical.* Chicago, Dec. 29. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

ARIZONA: Phoenix, Jan. 5-6. Sec., Dr. B. M. Berger, 12 North Central Ave., Phoenix.

COLORADO: Denver, Jan. 5. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Dec. 29-30. *Regular.* Washington, Jan. 11. Sec., Dr. W. C. Fowler, District Bldg., Washington.

HAWAII: Honolulu, Jan. 11-14. Sec., Dr. James A. Morgan, Room 48, Young Bldg., Honolulu.

ILLINOIS: Chicago, Jan. 12-14. Supt., Mr. Paul B. Johnson, Springfield.

MINNESOTA: *Basic Science.* Minneapolis, Jan. 5-6. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, Jan. 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Medical Arts Bldg., St. Paul.

NEBRASKA: *Basic Science.* Lincoln, Jan. 12-13. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

NEVADA: *Reciprocity.* Carson City, Feb. 1. Sec., Dr. Edward E. Hamer, Carson City.

NEW YORK: Albany, Buffalo, New York, Syracuse, Feb. 1-4. Chief, Mr. Herbert J. Hamilton, Room 315, State Education Bldg., Albany.

NORTH DAKOTA: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, Grand Forks.

OREGON: Portland, Jan. 5-7. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

PENNSYLVANIA: Philadelphia, Jan. 5-9. Sec., Mr. Charles D. Koch, Harrisburg.

RHODE ISLAND: Providence, Jan. 7-8. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

SOUTH DAKOTA: The St. Charles Hotel, Pierre, Jan. 19-20. Dir., Dr. H. R. Kenaston, Bonesteel.

WASHINGTON: *Basic Science.* Seattle, Jan. 14-15. *Regular.* Seattle, Jan. 18-19. Dir., Mr. Charles Maybury, Olympia.

WISCONSIN: Madison, Jan. 12-14. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

WYOMING: Cheyenne, Feb. 1. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Arizona October Examination

Dr. B. M. Berger, secretary, Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, Oct. 6-7, 1931. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Fourteen candidates were examined, 12 of whom passed and two failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1930)	80.8
Stanford University School of Medicine		(1929)	89
Northwestern University Medical School		(1930)	89.6
Rush Medical College		(1931)	85.8
University of Illinois College of Medicine		(1929)	86
Indiana University School of Medicine		(1930)	82
University of Louisville School of Medicine		(1930)	84.5
University of Maryland School of Medicine and College of Physicians and Surgeons		(1930)	88.5
Harvard University Medical School		(1929)	81.2
University of Minnesota Medical School		(1930)	80.2
University of Cincinnati College of Medicine		(1930)	80.8
University of Toronto Faculty of Medicine		(1931)	76.6

College	FAILED	Per Cent
Osteopaths		64.1, 64.4

North Carolina June Report

Dr. John W. MacConnell, secretary, North Carolina State Board of Medical Examiners, reports the written examination held at Raleigh, June 15, 1931. The examination covered 16 subjects and included 70 questions. An average of 80 per cent was required to pass. Seventy-four candidates were examined, all of whom passed. Fifteen physicians were licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Howard University School of Medicine		(1930)	81, 88.6
Emory University School of Medicine		(1931)	86.3
University of Louisville School of Medicine		(1929)	82.3, (1931) 84.3, 92.4
Tulane University of Louisiana School of Medicine		(1930)	91.3, (1931) 93.4, 94
Johns Hopkins University School o[illegible]		[illegible])	86.4, 95
University of Maryland School of [illegible] of Physicians and S[illegible]		[illegible]	86.4, 89.4
Harvard University [illegible]		[illegible]	94.3
Washington Universi[illegible]		[illegible]	87.7, 90.7
Syracuse University [illegible]		[illegible]	89.1
Jefferson Medical College of Philadelphia		(1931)	86.3, 86.4, 87.4, 88.9, 89.3, 90.3, 90.4, 90.7, 94.4, 95
Temple University School c[illegible]		(1930)	89.4
University of Pennsylvania [illegible]		(1928)	82, (1931) 83.7, 87.3, 87.6, [illegible]9.9, 90, 90.4, 90.4, 90.7, 91.4, 92.1, 93, 94.4
Medical College of the State of South Carolina		(1931)	82.1, 85.9, 89.6
Meharry Medical College		(1927)	80, (1928) 83.3, (1930) 80, 89.4
Baylor University College of Medicine		(1919)	84.1
Medical College of Virginia		(1930)	85.1, 89.3, (1931) 83.4, 83.4, 85.9, 86.1, 86.3, 87, 87.3, 87.3, 87.7, 88, 88.3, 88.4, 88.9, 89, 89.4, 91
University of Virginia Department of Medicine		(1928)	92.7

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Emory University School of Medicine		(1923)	Georgia
University of Georgia Medical Department		(1928)	Georgia
Rush Medical College		(1929)	Illinois
Baltimore Medical College		(1893)	New York
Johns Hopkins University School of Medicine		(1925)	Virginia
University of Maryland School of Medicine		(1908), (1914)	S. Carolina
Harvard University Medical School		(1927)	N. B. M. Ex.
Bellevue Hospital Medical College, New York		(1891)	S. Carolina
University and Bellevue Hospital Medical College		(1920)	New York
University of Cincinnati College of Medicine		(1928)	Ohio
Jefferson Medical College of Philadelphia		(1922)	Virginia
University of Pennsylvania School of Medicine		(1917)	Penna.
Medical College of the State of South Carolina		(1928)	S. Carolina
Laval University Faculty of Medicine		(1927)	Canada

Book Notices

The Influence of Diet on Caries in Children's Teeth. [Interim Report]. By the Committee upon Dental Disease. Medical Research Council, Special Report Series, No. 159. Paper. Price, 6d. Pp. 19, with 3 illustrations. London: His Majesty's Stationery Office, 1931.

This is a progress report of observations, extending over a period of about two years, made on 332 children receiving institutional care in and near Birmingham. The children were housed in separate cottages, which was a factor of assistance in carrying out the plan of investigation followed. All the children of a given cottage received test substances as daily additions to their regular diet. The administration of these supplements was carefully supervised by the foster mother. The diet of institution I was supplemented daily by treacle (golden syrup), from 28 to 42 Gm. (1 to 1½ ounces), according to the age of the child. At institution II, olive oil, from 14 to 21 cc. (1 to 1½ tablespoonfuls), according to age, was given as the daily supplement; later a second group at this institution received a similar amount of a solution of viosterol in olive oil. At institution III a group of children received a daily supplement of cod liver oil, the amounts being the same as for the olive oil experiments. Careful dental inspections were made at intervals of six months; the present report deals only with the number of erupted teeth and the presence and extent of caries. The data are treated statistically in order to determine the significance of the observations noted. There was an increase in the incidence and extent of caries in all groups, but in the case of those groups receiving fat-soluble vitamins (cod liver oil and viosterol solution) the increase was only about one-third that in the other groups. There was no significant difference in the rate of increase of caries between the children receiving olive oil and those receiving treacle. "The facts indeed seem to warrant the conclusion that the incidence and rate of progress of caries in teeth, either fully or nearly fully calcified, can be considerably retarded by the addition of fat-soluble vitamins to the normal diet. The general similarity of the results obtained from the use of cod liver oil and radiostol, respectively, suggests strongly that the potent factor in securing this retardation is vitamin D, inasmuch as it is common to both substances."

The Penalty: Must We Pay It? By Dr. Abraham Strachstein. Cloth. Price, $1. Pp. 136, with illustrations. New York: Good Health Publishing Company, 1931.

This book is labeled "a frank discussion of the social disease problem written so that whoever reads will understand." It is not especially well written. The words "luetic" and "lues" are used instead of "syphilitic" and "syphilis." The volume will not be understood by the vast majority of uneducated persons, who constitute the chief problem in control of venereal disease. The word "preventative" is used instead of "preventive," and in general the book is not quite up to what such a book ought to be.

Malaria Investigations in Some Parts of the Transvaal and Zululand. By N. H. Swellengrebel, Professor of Parasitology, University of Amsterdam, Holland, S. Annecke, M.A., M.B., B.S., Medical Inspector (Malarial), Public Health Department, Union of South Africa, and B. De Meillon, M.Sc., F.E.S., Acting Entomologist, South African Institute for Medical Research, Johannesburg. Publications of the South African Institute for Medical Research. Volume IV, No. 27. Edited by the Director. Paper. Pp. 245-274, with 18 illustrations. Johannesburg: South African Institute for Medical Research, 1931.

The only mosquitoes found to be concerned in malaria transmission were Anopheles funestus, Anopheles costalis and Anopheles pretoriensis. The natural index of infection in each case was: funestus, 15.9 per cent (340 examined); costalis, 15.6 per cent (205 examined), and pretoriensis, 1.7 per cent (114 examined). The conditions were found to be favorable to species control of the incriminated anophelines. A. funestus breeds in streams with grass-covered banks, especially where the current is not strong; it prefers water that is clear and fresh. A. costalis is a puddle breeder, being found in the most temporary mud puddles which are lacking in vegetation and without shade. A. pretoriensis is thought to play little part in natural transmission, probably because of its lack of contact with man. Evidence is presented which indicates that human gamete carriers (of estivo-autumnal malaria) with infections as low as 1 gamete to 1,500 leukocytes may infect anophelines. The native population in highly malarious areas shows a resistance to the disease. This is demonstrated by the lack of obvious signs of suffering in young children with heavy infection; by an acquired immunity later on, as shown by reduction of the parasite rate and a high spleen rate; and among adults by an acquired tolerance, as shown by a lessened spleen rate and a continued state of immunity, so that the parasites are kept low in numbers.

Gynecology and Urology for Nurses. By Samuel S. Rosenfeld, M.D. F.A.C.S., Adjunct Obstetrician and Gynecologist, Lebanon Hospital, New York City. Cloth. Price, $2. Pp. 230, with 97 illustrations. New York: William Wood & Company, 1931.

Because of the close relationship between gynecology and urology, the author presents a brief picture of these subjects. He falls short of making it of great value by devoting too little space to the subject of the nurse's responsibility in these conditions, and actual nursing care. The final chapter, written on postoperative care, appears to be a set of rules for hospital routine such as may be seen posted in the house staff room in some institutions. Lacking in this chapter is any discussion of postoperative complications and instruction to the nurse on how to recognize and evaluate untoward symptoms and signs. The book could be made more useful by revision in subsequent editions.

Atlas der Röntgenstereoskopie. Von Dr. Max Cohn, dirigierender Arzt der Röntgenabteilung am Städt. Krankenhaus im Friedrichshain-Berlin. 1. Serie mit 20 Filmdianegativen und einem Betrachtungsapparat. Cloth. Price, 22 marks. Pp. 26. Leipzig. Georg Thieme, 1931.

This collection includes a text by Dr. Max Cohn, a folding stereoscope and twenty stereoscopic negatives of roentgen appearances. Such conditions as tuberculosis of the kidney, appendicitis, gallstones, carcinoma, ulcers, echinococcosis, fractures, tumors of the brain, and various types of cysts are illustrated.

Exploration radiologique de l'appareil respiratoire. Par Émile Sergent, professeur à la Faculté de médecine de Paris, Francis Bordet et Henri Durand, chef du laboratoire de la clinique de la Charité. Avec la collaboration technique de J. Couvreux, chef du laboratoire de radiologie de la clinique de la Charité. Fascicule I et II. Cloth. Price, 350 francs per set. Pp. 465, with 639 illustrations. Paris: Masson & Cie, 1931.

This work is printed on excellent paper to bring out the roentgenographic illustrations to the best advantage. The scheme has been to publish the diagnosis and caption in close proximity to the illustration, to facilitate the intelligent study of the condition. The work is divided into three general parts: the first sets forth as briefly as possible the technical and roentgenologic exploration of the respiratory system, followed by general remarks on the value and interpretation of the results contributed to the clinical study by roentgenology. The second part is dedicated to the study of the basic principles, beginning with descriptions of the roentgenologic images of the normal respiratory tract. In the third part of the work there are described in order the roentgenologic appearances of the various respiratory disorders, classified under the following heads: thoracic cage, diaphragm, mediastinum, trachea and bronchi, pleura and the lungs. The text is adequate and not too brief. The captions contain the essential facts relating to each of the illustrations. The use of iodized oil in bronchiectasis is also described in detail, and certain other lesions are carefully described. This monumental work contains a veritable mine of information relating to the roentgenologic investigation of the respiratory tract.

Diseases of the Skin. By Richard L. Sutton, M.D., Sc.D., LL.D., Professor of Diseases of the Skin, University of Kansas School of Medicine. Eighth edition. Cloth. Price, $12. Pp. 1352, with 1301 illustrations. St. Louis: C. V. Mosby Company, 1931.

The first edition of Dr. Sutton's textbook appeared in 1916. The present edition includes a rearrangement of the illustrations, the use of a lighter and finer grade of paper, and much new material. The book is modern, and particularly safe as a guide for the general practitioner, since it does not offer to him technics involving roentgen or similar procedures suitable only for use by the specialist.

Die physikalische Seite des Blutgerinnungsproblems und ihre praktische Bedeutung. Von Dr. med. Heinrich Lampert, Privatdozent an der Universität Frankfurt a. M. Paper. Price, 10.50 marks. Pp. 127, with 45 illustrations. Leipzig: Georg Thieme, 1931.

This monograph presents results of studies of the physics of blood clotting. The function of surface forces in clotting receives especial attention. For blood transfusion, correct counting of thrombocytes and other purposes, it is desirable to use containers—syringes and vessels—the surfaces of which delay clotting. The author has made an effort to find substances that are more practical than paraffined glass for this purpose. Certain formaldehyde-phenol products delay coagulation, but the most promising substitute for paraffined glass appears to be amber, which, besides presenting surfaces which inhibit clotting for a time, also has the highly desirable quality of transparency. The author believes that his results will lead not only to valuable practical improvements in the handling of fresh blood but also to new and fruitful methods of investigating the blood itself.

Quantitative Estimation of Vitamin D by Radiography. By R. B. Bourdillon, H. M. Bruce, C. Fischmann and T. A. Webster. Medical Research Council, Special Report Series, No. 158. Paper. Price, 1s. Pp. 48, with illustrations. London: His Majesty's Stationery Office, 1931.

This is a detailed account of a method for the quantitative estimation of vitamin D, based on the roentgenographic examination of the healing of rickets in rats, for which an arbitrary scale of twelve different stages of healing is used. The curative effects of graded doses of the substance under examination are compared with the effects produced in a comparable series of animals by doses of a standard preparation, both being measured in terms of the roentgenographic scale described in this paper. Some of the factors taken account of in using this technic are breeding stock, age, weight, diet and caging of the young rats used for the test, and x-ray plant operated under specified conditions. A representative healing scale with detailed description is presented. Twelve roentgenograms comprise the series used in the scale, each picture being distinct enough to be distinguished from the others and to represent a definite state in the calcification process. The scale has been calibrated by tests on a large number of rats and found to be approximately logarithmic in nature. The chief sources of error in this technic prove to be variations in response of litter mates to vitamin, and mistaken judgment as to the degree of healing, the latter being responsible for nearly a third of the total error.

Bedside Interpretation of Laboratory Findings. By Michael G. Wohl, M.D., Associate Professor of Experimental Medicine, Temple University Medical School. With an introduction by Joseph McFarland, M.D., Sc.D., Professor of Pathology, University of Pennsylvania. Cloth. Price, $6. Pp. 321, with 133 illustrations. St. Louis: C. V. Mosby Company, 1931.

This book is noteworthy for its simplicity. It adds a few clinical interpretations of laboratory observations to those found in the ordinary textbooks on laboratory and clinical methods of diagnosis. In reality, the book is merely a summary of the work found in many textbooks and correlated for the purpose of clinical medicine and bedside teaching.

Medicolegal

Narcotic Addiction as Affecting Veracity

(Kelly v. Maryland Casualty Co. (U. S. D. C.), 45 Fed. (2d) 782; Maryland Casualty Co., Inc., v. Kelly (U. S. C. C. A.), 45 Fed. (2d) 788)

The Maryland Casualty Company, Inc., insured the Bank of Ivanhoe against loss by robbery or burglary. The bank was robbed. The plaintiff, J. M. Kelly, as receiver of the bank, thereafter sued the company, to recover under the insurance policy the amount lost through the robbery. In the United States district court for Western District of Virginia, Henry Clay McDowell, Judge, judgment was given in favor of the plaintiff, and the insurer thereupon appealed to the United States Circuit Court of Appeals, Fourth Circuit.

The cashier, a woman, was the principal witness for the plaintiff. She testified that while she was alone in the bank a masked man entered, pointed a pistol at her, and demanded the money in the bank. She handed him the money in the cash drawer, some $600 or $700, and then became unconscious. When she regained consciousness two hours later, she was locked in the vault, from which $5,600 was missing. She was in an hysterical condition and had hysterics and convulsions, which might have been either feigned or involuntary, from the time of her release from the vault until she was taken to the hospital about seven days later. On entering the hospital, she claimed to be suffering from an injury to the head, which she thought had been inflicted at the time of the robbery, either by a blow from the robber or by a fall. Her physician testified that during eighteen months he had personally administered to her from time to time, to relieve her from suffering, from 3 to 5 grains of morphine per week. The physician who saw her when she was admitted to the hospital testified that she was under the influence of morphine and was not suffering from a blow on the head. There was evidence that she had taken 4 grains of morphine and 5 ounces of chloroform the night before. There was, however, no evidence to show that she was under the influence of morphine either at the time of the alleged robbery or when she was testifying.

Counsel for the defendant insurance company, desiring to impair the credibility of the witness, offered to prove by a physician then present that she had for about eighteen months been addicted to the use of morphine. This physician, he said, would furthermore testify:

> My opinion is that an excessive use of morphine, such as indicated, might tend to undermine the morale of a person, especially for truthfulness, and make them cunning. It also tends to make them unreliable. I might also say that a drug addict might feign anything.

As the witness, the cashier of the robbed bank, had testified that her condition was due to her injuries, evidence of her addiction to the use of narcotic drugs, tending to contradict her testimony, was competent and admissible for that purpose. Such evidence was held incompetent and inadmissible, however, for the purpose of proving that the witness "was a dope addict, and that dope addicts are incredible."

In passing on the proffer of evidence to show that the witness was a narcotic addict and the effect of such addiction, Judge McDowell discussed elaborately and carefully the admissibility of evidence of narcotism, and more especially of evidence of morphinism, for the purpose of weakening the credibility of a witness. To that end he examined not only law books but every medical work that he was able to obtain from local physicians. In discussing this rather unusual resort to medical literature, Judge McDowell quoted Wigmore as follows:

> "Finally (and apart from the use, already referred to, of literary works and dictionaries) there is often found an open and deliberate citation by the court itself to encyclopedias, medical works, and the like, as giving a foundation of fact for subjects involved in their decisions."—3 Wigmore, Ev. (ed. 2), section 1700 d, page 651.

Several rules of law concerning the admissibility of evidence of drug addiction have been stated, said Judge McDowell, and,

> no court could have formulated, and no court could intelligently adopt or reject, any one of those rules, without having accepted as sound some theory as to the usual effect of narcotic drug addiction on the addict. And an intelligent adoption of one, rather than of some other, scientific theory makes necessary some knowledge of the different theories and of the reasoning supporting them. It seems to me to follow that it is the duty of a judge in my situation to inform himself as well as he reasonably may concerning the reasons for the differing medical opinions before he undertakes to make a choice between them.
>
> Again, it is to my mind much more satisfactory for the judge to read all the medical works he can reasonably obtain, rather than to rely wholly on the medical works selected by medical witnesses, whose selections might easily be influenced by conscious or unconscious partisanship.

Typical among the quotations from medical books, that Judge McDowell set forth to show what he found to be evidently, until recent times, the universal, or almost universal, medical opinion, and to be still the medical opinion of a very considerable body of writers, is the following:

> "Persons addicted to morphia are inveterate liars, and no reliance whatever can be placed upon their statements. In many instances this is not confined to matters relating to the vice."—William Osler and Thomas McRae, Principles and Practice of Medicine (ed. 9), p. 392.

Judge McDowell found, however, medical writers supporting "a more modern theory," and quotes effectively from what they have written. The following is typical of these quotations:

> "No addict who receives an adequate supply of opium and has money enough to live is converted into a liar or thief by the direct effect of the drug itself."—Lawrence Kolb, U. S. Public Health Service, Drug Addiction in Its Relation to Crime, Mental Hygiene **9:** 74-89.
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> "That individuals may take morphine or some other opiate for twenty years or more without showing intellectual or moral deterioration is a common experience of every physician who has studied the subject."—Lawrence Kolb, U. S. Public Health Service, Pleasure and Deterioration from Narcotic Addiction, Mental Hygiene **9:** 699, 724.

In view of the conflicting statements in medical literature, Judge McDowell concluded:

> it is manifest that there is now no consensus of medical opinion to the effect that morphine addicts are usually abnormally untruthful in respect to matters not connected with the vice. And it follows that there is no justification for treating the older theory, or either theory, as a matter of common knowledge.

On the other hand, he found an agreement, practically universal, on two points:

> Nearly all drug addicts are untruthful in respect to the fact of addiction. This is also true in respect to obtaining, and in respect to retaining possession of, the desired drug, where there is any fear of a failure of supply.

On the whole, Judge McDowell concluded, an inference that morphinism usually causes abnormal mendacity in respect to matters in general is of such doubtful validity that it cannot be accepted as a matter of law.

The theory that narcotic addicts live in an unreal world and thus become unable to distinguish between images and facts, stated in *State* v. *Fong Loon*, 29 Idaho 248, 158 Pac. 233, and in Wharton and Stillé, Medical Jurisprudence (ed. 3), section 1111, Judge McDowell found himself unable to accept, arguing:

> But because a narcotic drug has some particular effect on people who are unaccustomed to such drug, it does not follow that the same drug has a similar effect on those who have become addicted to its use. . . . I cannot here do more than say that the impression left on my mind by the medical works I have read is that morphine addicts obtain from their usual dose merely freedom from "withdrawal pains," and that pleasurable sensations, including the dream state, can be obtained only occasionally and by means of a sudden increase in the size of the dose.
>
> At the least, there is certainly room for some doubt if narcotic drug addicts do live in an unreal world. And, even if they do, the assertion that long-continued day dreaming causes mendacity seems to me to require more supporting evidence than I have been able to find. Day dreamers are usually impractical people, but they are not generally understood to be more untruthful than are people who do not indulge in day dreaming.

The rule laid down in the Cyclopedia of Law and Procedure (40 Cyc. 2575) which authorizes the introduction of evidence to show that a narcotic drug addict was under the influence of the drug of addiction at the time of the occurrence about which the addict has testified, or is so at the time of testifying, Judge McDowell regarded as unsound. The rule is based on the theory that narcotic drug addicts are stupefied by such drugs, like people who are not accustomed to their use, and that their powers of observation, memory and narration are temporarily impaired. It would be contrary to all experience, however, if the usual dose of a morphine addict were to affect him exactly as that drug affects people who are not accustomed to it. There is much room for doubt if the usual dose of a morphine addict stupefies him, or if it has any effect except to prevent withdrawal pains. The medical writers seem to be agreed that whenever a morphine addict is not under the influence of at least his usual dose he is in a state which ranges from extreme discomfort to intense pain. In other words, morphine addicts should be mentally at their best when under the influence of their customary doses, and at their worst when in need of their drugs of addiction.

Evidence of morphinism on the part of a witness, if supported by competent evidence to the effect that the memory of that particular addict has in fact been impaired or by competent opinion evidence to the effect that the addiction of the witness has been for a sufficient period, or that amounts used have been great enough probably to impair the memory of the addict, clearly may be admissible. But, Judge McDowell concluded, evidence of drug addiction standing alone should not be admitted on the ground that it may have impaired the addict's memory. The addiction may have had such an effect, and it may not. There is medical authority for the assertion that long-continued addiction or a very large consumption of a narcotic drug does usually impair the memory. But not all drug addicts have been such for a long period, and some do not use and never have used large quantities of the drug of their addiction. Many medical works make no mention of impairment of memory as a result of narcotism. Evidence of addiction would, therefore, in many cases be admissible.

Nevertheless, in *Wilson* v. *United States*, 232 U. S. 563, 34 S. Ct. 347, 58 L. Ed. 728 (1913), a defendant in a criminal case, on cross-examination, admitted that she was addicted to the use of morphine and stated that she had taken her last dose of the drug at 10 o'clock that morning. The Supreme Court held that evidence was admissible. But whether or not that decision makes admissible further questions from the cross-examiner, to show that the witness is a morphine addict, is not clear. Judge McDowell thought that that was not the necessary effect of the decision. Owing to the popular belief that drug addicts are unveracious, knowledge by the jury of the bald fact of addiction would do an illegitimate injury to the credit of the witness; illegitimate, because the basis of the ruling in the case just cited was not a probability of mendacity but a probability of some degree of still continuing temporary stupefaction of the mental powers of the witness, due to the recent dose of morphine.

In affirming the judgment of the district court in favor of the plaintiff, the Circuit Court of Appeals, Fourth Circuit, said:

> As she (the witness) had testified that her condition was due to her injuries and the evidence tended to contradict her, it was competent for that purpose. But it is insisted that it should have been received for all purposes, principally for the purpose of showing she was a dope addict, and that dope addicts are incredible. Without entering upon a discussion of the tendency, if any, of the excessive use of morphine to undermine the moral attributes of the user, it suffices to say there is no sufficient evidence in the record to show that Mrs. Huddle had made such excessive use of it, and the court committed no error in restricting the evidence.

Workmen's Compensation: Hernia or Hydrocele.—About ten months after an alleged blow on the abdomen in the course of his employment, the claimant filed his application for compensation under the workmen's compensation act, asserting that the blow had caused a hernia. An order of the workmen's compensation board awarding compensation was affirmed by the circuit court, Harlan County, and an appeal was taken to the Court of Appeals of Kentucky. The claimant testified that after the injury he was examined by about thirty physicians, all of whom advised him that he had a hernia, but he was unable to give the name of any physician but one, who himself denied ever having examined the claimant after he was injured. A physician testifying on behalf of the claimant said that the claimant was not able to do manual labor, that his ruptured condition could have been caused by such an accident as the claimant described, that the claimant had a hydrocele near the hernia, and that because the claimant was anemic and had tuberculosis, it was his opinion that the claimant was not a good surgical risk and ought not to undergo a surgical operation. On the other hand, the physician named by the claimant as having examined him testified that he had never seen him nor treated him after the injury, but that his records showed that the claimant was examined before he entered the service of his employer from whom he was now claiming compensation and that at that time he was not ruptured, but had a hydrocele and some tenderness, which would not interfere with his work. Another physician testified that he had examined the claimant after the injury, preparatory to giving evidence, by the use of the x-rays and by physical examination, that there was no evidence of hernia, that he had a hydrocele of long standing which was not due to trauma, and that while his condition might interfere slightly with his work, it could be relieved by a simple operation. The Court of Appeals, however, affirmed the order of the circuit court, Harlan County, which had affirmed the order of the workmen's compensation board, awarding compensation to the claimant because of his alleged hernia arising from an injury in the course of his employment. —*Mary Helen Coal Corporation v. Hooker (Ky.), 35 S. W. (2d) 535.*

Wills: Testimony of Attending Physician Concerning Competence of Testator.—An attending physician may express an opinion concerning the competence of a testator without giving the reason on which his opinion is based. This rule applies with greater force when the witness is the family physician, one who has known and attended the testator over a period of years and has thereby become intimately acquainted with his physical and mental constitution and peculiarities. His testimony, under such conditions, is more than a mere opinion. It is equivalent to knowledge.—*Davidove v. Duvall (Md.), 153 Atl. 417.*

Frontal Sinusitis Attributed to Trauma.—The plaintiff in falling struck her head against a wall. The impact was so severe as to cause swelling and tenderness over her left eye and resulted in pus forming in the sinus above the eye. She was operated on for the sinus trouble. The wound healed quickly, but she was suffering at the time of the trial from conjunctivitis and impaired vision. The Kansas City Court of Appeals, Missouri, held that an instruction that allowed the jury to conclude that the injury was permanent was not erroneous.—*Burnison v. Saunders (Mo.), 35 S. W. (2d) 619.*

Wills: Criteria of Testamentary Capacity.—Neither sickness nor impaired intellect is sufficient, alone, to render a will invalid. If at the time of the execution of the will the testator was capable of recollecting her property and the natural objects of her bounty and their claims on her, and knew the business about which she was engaged and how she wished to dispose of her property, that is sufficient. Moreover, those who would impeach a will on the ground that the decedent was incompetent must clearly prove that incompetence.—*Tabb v. Willis (Va.), 156 S. E. 556.*

Evidence: Medical Witness's Discussion of Facts with Others.—In a personal injury suit, the defendant, over the plaintiff's objection, asked one of the plaintiff's medical witnesses if he had conferred with other physicians in attendance on the plaintiff. Objection was made on the ground that the inquiry sought to elicit an immaterial fact. We believe, said the Supreme Court of Oregon, that the information sought was material; it is always permissible to ask a witness whether he discussed the facts with any other person.—*Stotts v. Wagner (Ore.), 295 P. 497.*

Drunkenness: As Excuse for Delay of Trial.—Intoxication resulting from the recent use of ardent spirits is no excuse for crime and the court of criminal appeals of Texas doubted whether it would be justified in establishing a precedent that one who is drunk may rely on that fact as an excuse for not going to trial on a criminal charge.—*Perry v. State (Texas), 33 S. W. (2d) 1072.*

Society Proceedings

COMING MEETINGS

Mid-South Post-Graduate Medical Association, Memphis, Tenn., February 9-12. Dr. A. F. Cooper, Bank of Commerce Building, Memphis, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to The Journal in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

7: 1-132 (Oct.) 1931

*Further Report on Prognosis of Angina Pectoris and Coronary Thrombosis: A Study of Five Hundred Cases of Former Condition and of Two Hundred Cases of Latter. P. D. White and E. F. Bland, Boston.—p. 1.

*Electrocardiogram in Luetic, Arteriosclerotic and Rheumatic Heart Disease. A. Friedlander, Cincinnati.—p. 15.

Nervous and Mental Influences in Angina Pectoris. S. R. Roberts, Atlanta, Ga.—p. 21.

Contributory Factors in Coronary Occlusion. D. Luten, St. Louis.—p. 36.

*Familial Tendency of Coronary Disease. J. H. Musser and J. C. Barton, New Orleans.—p. 45.

Red Cell Sedimentation Time in Coronary Occlusion. M. A. Rabinowitz, C. Shookhoff and A. H. Douglas, Brooklyn.—p. 52.

Cardiovascular Disease: Report of 398 Cases Coming to Necropsy. A. M. Glazer, Cincinnati.—p. 66.

*Ventricular Paroxysmal Tachycardia: Report of Case in Pregnant Girl of Sixteen Years with Apparently Normal Heart. T. M. McMillan and S. Bellet, Philadelphia.—p. 70.

Anomalous Papillary Muscle Attached to Pulmonary Valve of Heart. D. C. Collins, Rochester, Minn.—p. 79.

*Clinical Signs of Occluding Thrombi of Left Auricle. S. P. Schwartz and S. Biloon, New York.—p. 84.

Case of Acute Coronary Occlusion with Roentgenographic Evidence of Early Development of Aneurysm of Left Ventricle. C. Shookhoff and A. H. Douglas, Brooklyn.—p. 95.

Prognosis of Angina Pectoris.—White and Bland made a clinical study of 500 cases of angina pectoris and of 200 cases of coronary thrombosis. They present an analysis of certain factors the presence of which may or may not influence the gravity of the prognosis. The importance of the subject is evident because of the increasing frequency of angina pectoris and of the responsible position in the community of many of the patients. Of the series of 500 patients with angina pectoris, 213 are dead with an average duration of life of 4.4 years after the onset of the disease. The average duration of life to date for the total series of 500 patients was 4.9 years. Of the patients who died, death could be attributed to failure of the heart in 82 per cent, and a sudden exitus was frequently encountered. About one fifth (19 per cent) had normal hearts on physical examination, normal blood pressures, and normal electrocardiograms. This combination of observations was an unusually favorable sign. Coronary thrombosis, although frequently encountered, did not affect appreciably the duration of life, provided the patient survived the acute attack. The presence of hypertension appeared not to be of serious import. The electrocardiogram was of little help in predicting the outcome, although a "coronary" type of T wave in lead I or II was seen more often in the patients who died early. The presence of syphilis, angina decubitus, poor heart sounds, definite cardiac enlargement, congestive failure, or marked arteriosclerosis appears to be unfavorable, and the more of these factors present in the given case, the worse is the prognosis. A vital factor in the prognosis is the degree of care to which the patient can and will submit; the more careful the life of the individual, the longer as a rule will he live. Of the series of 200 patients with coronary thrombosis 101 are dead, with an average duration of life following the attack of 1.5 years. The average duration to date for the entire series of 200 patients was 2.4 years. The patients who died almost invariably succumbed to failure of the heart. The younger patients as a rule lived a little longer; the sex appeared to be unimportant. Neither the previous occurrence of angina pectoris nor its duration prior to the attack of coronary thrombosis seemed to matter. Hypertension was not important. Syphilis was rarely encountered. Cardiac enlargement of considerable degree was a somewhat unfavorable sign, while the presence of congestive failure and poor heart sounds added considerably to the gravity of the prognosis. The electrocardiogram did not help appreciably in this series. Good treatment was important.

Electrocardiogram in Heart Disease.—In a study of 100 cases of advanced cardiovascular syphilis, using like numbers of cases of arteriosclerotic and rheumatic heart disease for comparison, Friedlander did not note any electrocardiographic changes pathognomonic of syphilitic heart disease. The electrocardiographic picture in syphilitic and in arteriosclerotic disease shows a striking parallelism. The variations from the normal as found are due to the myocardial degeneration and are not characteristic of the syphilis alone. While it is true that certain of the arrhythmias and certain abnormalities of the T wave are of sinister prognostic import, it appears to be quite true that this is the case in the arteriosclerotic as well as in the syphilitic cases. There is thus no characteristic electrocardiographic picture of cardiovascular syphilis, and it is not justifiable to make definite forecasts of the prognosis in this disease from the electrocardiogram alone.

Familial Tendency of Coronary Disease.—Musser and Barton advance the thesis that there are two quite distinct expressions of coronary occlusion. The one is observed in elderly individuals, possessors of a well marked sclerosis of the arterial tree as a whole and in whom the etiologic factors are those of arteriosclerosis in general and represent largely the effects of senescence. The other occurs in men, as a rule, not past the sixth decade of life who do not have generalized arteriosclerosis, who may have relatively slight, but never exaggerated, hypertension, who have been singularly free from past infections, and who often give a history of coronary occlusion in several members of their family.

Ventricular Paroxysmal Tachycardia.—McMillan and Bellet report a case of ventricular tachycardia in which the following interesting features were noted: (1) the youth of the patient (sixteen years); (2) the absence of any definite evidence of a damaged heart; (3) the occurrence of the disturbance during pregnancy and its failure to disappear on the termination of gestation; (4) the ready abolition of the tachycardia by quinidine, and (5) the successful and uneventful outcome of a cesarean section performed during the tachycardia.

Occluding Thrombi of Left Auricle.—Schwartz and Biloon give the case histories of three patients in whom a clinical diagnosis of an occluding thrombus of the left auricle suspected during life was confirmed by postmortem examination. Two of these patients had mitral stenosis and one had hypertension. In one patient the diagnosis of a ball thrombus was suspected on the basis of the sudden and transitory appearance of peripheral vascular disturbances, such as uniform discoloration with cadaveric appearance of the extremities at a time when pulsations of the vessels to these limbs were totally absent. During such periods the sensorium was disoriented, the patient was in mild shock, the skin was cold, moist and clammy, and the first heart sound was inaudible, while oscillometric readings of the limbs affected did not reveal any movements. A diagnosis of an occluding auricular thrombus was based in one case on the rapid development of uniform discoloration with gangrene of the terminal phalanges of the ten toes and ten fingers, which persisted for more than a month until death. In the other case this diagnosis was based on the rapid progressive appearance of pain and gangrene of the legs and arms, with weak pulsations in the vessels supplying these limbs. All three patients showed auricular fibrillation with a rapid ventricular rate and were refractory to large doses of digitalis. It is probable that the irregular heart action favored the rapid development and increase in size of the auricular thrombi. The circumstances responsible for the formation of ball or pedunculated thrombi are still unknown. The mechanics of gangrene formation in the presence of an occluding thrombus of the left auricle is based on its obstruction of the mitral orifice causing a diminished blood flow to the periphery. This is enhanced by the further incomplete diastolic filling of the left ventricle because of the rapid and irregular heart action. The onset of such peripheral disturbances in patients with heart disease is of grave prognostic significance, for death takes place shortly after their appearance.

American Journal of Diseases of Children, Chicago

42: 965-1052 (Oct.) 1931—Part II

*Skin Temperatures of Children. F. B. Talbot, Velma Bates, Eleanor Bates and Alice J. Dalrymple, Boston.—p. 965.

Skin Temperatures of Children.—Studies of skin temperatures of children made by Talbot and his co-workers by means of a thermocouple showed the following facts: 1. There is a local variation of the temperature of the skin over different parts of the body, even in normal children, the temperature of the trunk being highest, the face next and the extremities lowest. The temperature of the feet tends to be lower than the temperature of the hands. 2. Surrounding temperature has a definite effect on the temperature of the skin of the body even when the child is clothed. The cooler the room is, the lower the temperature of the skin. 3. There is also a seasonal effect on the temperature of the skin. 4. This investigation showed that humidity within the limits of room temperature and room humidity studied had no effect on the temperature of the skin. 5. There is a rapid loss of heat from the surface of the body on exposure. This affects the face least, the body next and the extremities most. There is a greater variation in the reaction of the extremities to different surrounding temperatures than in other parts of the body. This suggests that the extremities act as safety valves for the conservation or the elimination of heat. 6. During fasting the temperature of the skin, as well as that of the body, becomes reduced. 7. Exercise has a definite effect on the skin temperature. During the first few minutes of exercise the temperature of the skin falls and later rises. This may be of profound physiologic importance and suggests that when exercise is first commenced heat is retained in the body in order to increase the efficiency of the muscles. 8. This work gives further evidence that the heat-regulating apparatus of the premature infant is not developed. The temperature of the skin, as well as that of the body, is affected directly by the surrounding temperature and to a greater degree than it is in normal babies. 9. Studies were made of the effect of fever on subjects with different body temperatures. These were grouped in such a way that the skin temperature for different fevers and different room temperatures are now available and are presented as possible standards of expected skin temperatures for different body and room temperatures. 10. The skin temperature was recorded in a number of cretins with lowered basal metabolism. Some of them were also studied after the metabolism had been elevated by the use of thyroid extract. When heat production was found increased, the temperature of the skin was increased. 11. A variety of pathologic cases were studied without showing any relationship between the temperature of the skin and the type of illness which the patients were suffering.

American J. Obstetrics & Gynecology, St. Louis

22: 501-660 (Oct.) 1931

*Use of Anterior Pituitary Luteinizing Substance in Treatment of Functional Uterine Bleeding. E. Novak and G. B. Hurd, Baltimore.—p. 501.

*Results of Rabbit Ovulation Test in Diagnosis of Pregnancy. K. M. Wilson and G. W. Corner, Rochester, N. Y.—p. 513.

Clinical Importance of Sex Hormones. E. C. Dodds, London, England.—p. 520.

Morphology of Menstrual Blood and Its Diagnostic Value. S. H. Geist, New York.—p. 532.

Reradiations in Radium Therapy of Carcinoma of Cervix Uteri. G. Gray Ward and Lilian K. P. Farrar, New York.—p. 543.

Five to Fifteen Year Follow-Up Study of One Hundred and Ninety-Two Cervical Cancers. F. W. Lynch, San Francisco.—p. 550.

Conclusions from Study of Five-Year Cures in Series of One Hundred and Twenty-One Cases of Carcinoma of Cervix Uteri. H. S. Crossen, St. Louis.—p. 559.

Basal Metabolic Rates in Late Pregnancy and Puerperium. O. H. Schwarz and C. Drabkin, St. Louis.—p. 571.

*Clinical Study of Postoperative Value of Barbituric Acid Hypnotics. Alice F. Maxwell, San Francisco.—p. 579.

Prevention and Repair of Hernia in Low Median-Line Incisions. J. C. Masson, Rochester, Minn.—p. 596.

*Length of Labor. L. A. Calkins, Kansas City, Mo.; J. C. Litzenberg, Minneapolis, and E. D. Plass, Iowa City.—p. 604.

Treatment of Vertex Occipitoposterior Position. A. H. Bill, Cleveland.—p. 615.

Prognosis in Nephritis Complicating Pregnancy. H. J. Stander and C. H. Peckham, Baltimore.—p. 626.

Blood Sugar in Eclampsia. J. M. Laferty, Philadelphia.—p. 637.

Is Salpingitis a Factor in Incidence of Tubal Pregnancy? R. C. van Etten, New York.—p. 645.

Case of Rudimentary Congenital Heart in the New-Born. J. I. Kushner, New York.—p. 647.

Anterior Pituitary Luteinizing Substance in Treatment of Functional Uterine Bleeding.—Novak and Hurd describe the results they obtained in the treatment of fifty-one women with functional uterine hemorrhage by an anterior pituitary luteinizing principle derived from the urine of pregnant women. In forty-four of these the treatment was successful in checking the bleeding, even though some of the patients were treated with preparations of somewhat uncertain luteinizing potency. Most of the failures were in this group. Previous efforts at the organotherapy of this condition have been unsuccessful. Radiotherapy is highly undesirable in young women, so that, because of the frequent intractability of functional hemorrhage, many patients have had to submit to repeated curettage. With strongly luteinizing preparations, it was possible to check functional hemorrhage in twenty-seven of twenty-nine cases. In fourteen of the fifty-one cases the bleeding ceased after a single injection, and in twelve after two injections. A large proportion of these were of the intractable and recurrent type, many of the patients having had from one to four or more curettages. With less potent luteinizing preparations the results were less impressive but, on the whole, satisfactory. The authors' experience with the entire group has convinced them of the value of the treatment in functional hemorrhages, and of its even greater future possibilities.

Rabbit Ovulation Test in Diagnosis of Pregnancy.—Wilson and Corner present results obtained from the urines of 196 women on whom the rabbit ovulation test as suggested by Friedman was made. The observations correspond closely to those reported in the use of the Aschheim-Zondek reaction, with apparently a small percentage of error. Its advantages over the latter are found chiefly in the much shorter time necessary, its simplicity, and a possible economy of laboratory animals. From their experience the authors believe that it should prove to be an extremely valuable and practical method for the early diagnosis of pregnancy. In their series, with the exception of a single case of endometrial hyperplasia, a positive reaction always indicated the presence of active fetal tissue in biologic contact with the maternal blood stream, or recently (not over seventy-two hours) separated from it. A negative reaction does not entirely exclude the possibility of a pregnancy being present, since the intra-uterine or extra-uterine ovum may have perished and been retained for some period of time. The test may prove to be of some value in determining the life or death of the ovum in the early months, though not its immediate death, and not in the later months of pregnancy.

Study of Postoperative Value of Barbituric Acid Hypnotics.—Maxwell calls attention to the fact that opium and its derivatives increase the frequency and severity of postoperative distention and vomiting and are not necessary to relieve pain. Barbituric acid hyptonics are satisfactory from a pharmacologic and clinical standpoint when combined with an analgesic (amidopyrine). It is illogical to combine these agents in fixed proportion, because of the marked difference in their rate of elimination; it is rational to administer them separately according to clinical indications. Barbital, by virtue of its simple chemical structure, is less toxic and clinically as effective as its more complex and toxic modifications. The author recommends these hypnotics because their action is limited to the central nervous system and their use is followed by a high incidence of amnesia and by little disturbance of organic function.

Length of Labor.—Calkins and his associates believe that a more accurate observation of the resistance of the cervix (and the pelvic floor), as well as more accurate determination of the effectiveness of the labor pains, will be necessary in order to analyze the causes for the extreme variations in the length of labor so commonly encountered. More accurate determination of the resistance would likewise enable one to predetermine the probable duration of the labor. Deliberate appraisal of the various factors present in any given labor, when balanced against a more definite knowledge of the forces present and functioning, might also serve to reduce the present high rate of operative intervention. To this end, it is suggested that the consistency of the cervix, as well as the thickness of its wall and the length of its canal, be accurately determined and recorded before labor begins or as early in labor as possible. Such a record on a scale of five (one being a very soft cervix, three one of average softness, and five a firm resistant cervix) has been kept in a few hundred cases with surprisingly satisfactory results. It is suggested that the effectiveness of labor pains be more accurately determined and recorded for the purpose of increasing one's ability to determine the probable length of labor in each given case. Experience with a small series thus estimated on a scale of five (with one and two representing poor pains, three average pains, four hard pains, and five abnormally hard pains), has proved highly suggestive. In the grading of labor pains, more attention is paid to the intensity of the contraction than to duration or frequency, although all three factors must be given consideration. Intensity of first stage contractions can be satisfactorily estimated by digital (not palmar) palpation of the fundus or by palpation of the tension, and amount of stretching, produced in the cervix. Likewise, in the second stage, digital palpation of the fundus is preferred to the determination of the amount of descent or the amount of stretching of the pelvic floor. It is believed that accurate determination of the effectiveness of the labor pain balanced against the resistance of the cervix and pelvic floor is the all important factor in determining the length of labor. The other variants, as analyzed by the authors, are of only minor importance.

American Journal of Public Health, New York

21: 1189-1300 (Nov.) 1931

Presidental Address. H. S. Cumming, Washington, D. C.—p. 1189.
Drought and Health. M. P. Ravenel, Columbia, Mo.—p. 1198.
1930-1931 Drought and Its Effect upon Public Water Supply. E. S. Tisdale, Charleston, W. Va.—p. 1203.
Sewage Disposal Difficulties Due to Drought. L. S. Finch, Indianapolis.—p. 1219.
Epidemiologic Study of Suspected Water-Borne Gastro-Enteritis. M. V. Veldee, Washington, D. C.—p. 1227.
What a Public Health Nurse Expects of Her Chief—the Health Officer. Agnes J. Martin, Syracuse, N. Y.—p. 1236.

Annals of Internal Medicine, Ann Arbor, Mich.

5: 401-538 (Oct.) 1931

*Variations in Manifestations of Rheumatic Fever in Relation to Climate. W. T. Longcope, Baltimore.—p. 401.
*Colonic Changes in Chronic Arthritis. W. H. Dickson, Toronto.—p. 408.
*Total Occlusion of Right Branch of Pulmonary Artery by Organized Thrombus. J. H. Means and T. B. Mallory, Boston.—p. 417.
*Therapeutic Use of Oxygen in Heart Disease. A. L. Barach, New York.—p. 428.
*Reaction to Nitrites in Anginal Syndrome and Arterial Hypertension. A. M. Burgess, Providence, R. I.—p. 441.
*Auricular Flutter and Complete Heart Block: With Restoration of Sinus Rhythm and A-V Conduction. L. T. Gager, Washington, D. C.—p. 463.
Primary Aplastic Anemia: Two Cases. J. B. Carey and J. H. Taylor, Minneapolis.—p. 471.
*Use of Sulphur for Production of Fever in Peripheral Vascular Diseases. L. M. Waller and E. V. Allen, Rochester, Minn.—p. 478.
*Mediastinal Displacement in Pneumothorax. W. C. Pollock, Denver.—p. 486.
Treatment of Recurrent Erysipelas. H. L. Amoss, Durham, N. C.—p. 500.
Historical Development of Present Conception of Cardiac Conditions in Exophthalmic Goiter. A. M. Ginsberg, Kansas City, Mo.—p. 505.

Manifestations of Rheumatic Fever in Relation to Climate.—According to Longcope, the available statistics concerning the geographic distribution of rheumatic fever indicate that the disease is rare or almost unknown in the tropics, and much less commonly observed in the warmer portions of mid-temperate zones than in the colder portions. In some regions where rheumatic arthritis is said to be rare, mitral stenosis is quite frequently observed. At the Johns Hopkins Hospital in Baltimore the admission rate to the adult medical wards for rheumatic fever, in all its forms and in all its stages, over a period of five years was 1.37 per cent. The necropsy rate for rheumatic heart disease over a period of twenty-one years was 1.66 per cent. The disease, therefore, is comparatively common. An analysis of 142 cases of rheumatic fever studied during this period showed that symptoms or signs of cardiac disease appeared in the past histories of 50 per cent of the cases. Cardiac disease was present on admission to the hospital or was detected during observation in 95 per cent of these cases. Only 6 of the entire 142 patients presented symptoms and signs of arthritis alone, but in more than 77 per cent arthritis, often of mild degree, occurred at some time during the illness for which they were admitted to the hospital. Rheumatic fever, as it is seen at the Johns Hopkins Hospital, is essentially a disease of the heart, frequently preceded or accompanied by arthritis, often of mild degree, or by chorea. Severe acute arthritis is rarely seen, but acute pericarditis and pleurisy are not very infrequent. The author suggests that the infrequency of severe acute arthritis, the great frequency of carditis and the comparative insidiousness of the disease during the acute and subacute stages render the clinical picture of rheumatic fever somewhat different in Baltimore from that generally described for more northerly sections of the United States.

Colonic Changes in Chronic Arthritis. — Dickson gave barium enemas to normal rats, well nourished and fed on a diet rich in vitamin B. After this examination a diet deficient in vitamin B was exhibited for several weeks, when a second enema was given. The diet was again returned to one high in vitamin B and a third enema administered in a month's time. The colon underwent marked changes during the observation. The second examination showed the bowel elongated and markedly atonic, so atonic in fact that the pressure from the flow of the enema was great enough to rupture the colon, and the enema poured out into the abdominal cavity. The rats not lost by this accident were at once placed on a diet again rich in vitamin B, and further observation was made in a month's time. At the third observation the tone of the intestine had returned to normal, and the intestine was much shortened in its total length. In some of the rats it was difficult to demonstrate any difference between appearances at the first and at the third enema. With this point in mind, the author assumed that some of the abdominal disturbances of chronic arthritis might be associated with nutritional deficiency, and investigation was undertaken in an attempt to prove or disprove the theory. The first step was to demonstrate the incidence and type of colonic abnormalities in arthritic cases. When this had been done, periodic examinations were made to demonstrate the effect of suitable diet on the clinical progress and the roentgenologic appearance of the large intestine. In many cases the return to a normal appearance was indeed amazing. In others, and these were complex cases in which nutrition alone played only a minimum part, the changes were slight or absent. It was, however, extremely interesting to note that in the majority of cases the improvement noted on the film bore a close relation to the improvement noted clinically. Latterly, the author has been able with a fair degree of accuracy to state from the roentgenologic examination the amount of improvement, shown clinically, without any progress history being supplied from the clinician. Also it has been possible after the first examination in some cases to give a prognosis pointing toward failure that has been borne out by the patient's subsequent course.

Occlusion of Right Branch of Pulmonary Artery by Thrombus.—Means and Mallory report a case which illustrates the fact that total thrombotic occlusion of a main branch of the pulmonary artery may occur without damage to the lung, provided it develops slowly enough to allow for the development of collateral circulation through the bronchial system. Such a lesion may not produce local signs in the lungs, but the presence of cyanosis and right-sided heart failure without other obvious cause may suggest its presence. The case is interesting from the point of view of morbid physiology in that it proves that an entire lung may be separated from its pulmonary artery supply and suffer no injury of any sort provided the occlusion is gradual, allowing time for the establishment of collateral circulation from the aorta. The situation reminds one of those cases of chronic total occlusion of both coronaries without history of the characteristic picture of coronary occlusion. The effect of slow closure of the pulmonary artery is evidently different from sudden shutting off, as from embolism or ligation, in which cases the picture of infarction is produced.

Use of Oxygen in Heart Disease.—Barach studied the therapeutic use of oxygen in eight patients with congestive heart failure due to primary cardiac disease, in five cases of cardiac insufficiency developing as a sequela to chronic pulmonary diseases, in four cases of acute coronary thrombosis, and in three cases of coronary arteriosclerosis with chronic cardiac pain. In the cases of congestive heart failure the most striking effects observed were relief of dyspnea and orthopnea, diuresis and disappearance of edema, and a marked rise in the carbon dioxide content of the arterial blood. Other observations noted were relief of cyanosis, increased arterial oxygen saturation, decreased pulmonary ventilation, lowered pulse rate, and decrease in the lactic acid content of the blood. In cases of acute coronary thrombosis, life appeared to be prolonged by the inhalation of an oxygen-enriched atmosphere until the heart was able to recover from its acute functional disturbance. The cases of coronary arteriosclerosis with chronic cardiac pain were relieved by residence in a high oxygen atmosphere. These results indicate that oxygen want is the primary factor in the production of many forms of cardiac dyspnea. The increase in carbon dioxide content of the arterial blood occurs as an adaptative change which facilitates the elimination of carbon dioxide. The clinical improvement which patients suffering from the various forms of heart failure experience suggests a new employment of oxygen therapy by effective methods in these conditions.

Reaction to Nitrites in Arterial Hypertension.—Burgess states that, except for a transient fall in blood pressure after amyl nitrite, neither it nor glyceryl trinitrate when used in the usual therapeutic doses causes any consistent blood pressure changes in normal human beings or in persons with arterial hypertension with or without severe renal damage or retinal arteriolar sclerosis. The fall occurring after the use of amyl nitrite is so rapid and transitory and so independent of subjective symptoms that it is impossible to measure it accurately by taking blood pressure determinations in the ordinary way. This fact greatly decreases its usefulness as a test for arteriolar relaxability in estimating the prognosis in arterial hypertension. In persons suffering from attacks of angina pectoris of the usual ambulatory type, a rapid fall in systolic and usually in diastolic pressure takes place after the use of these drugs. The pain relief that occurs in these cases of ambulatory angina is independent of the pressure levels, and therefore apparently independent of the action of the nitrites on the peripheral vessels, but due to their action in increasing coronary circulation. The cause of the pain in ambulatory angina is probably an ischemia of the myocardium dependent on an insufficient blood supply due to disease of the coronary arteries.

Auricular Flutter and Complete Heart Block: With Restoration of Sinus Rhythm and Auriculoventricular Conduction.—Gager restored a patient with complete heart block to sinus rhythm and auriculoventricular conduction by the use of quinidine sulphate. Physical and mental improvement resulted. Fifteen cases were found in the literature showing the association of auricular flutter and total block, and the clinical phenomena and criteria for diagnosis are reviewed. From experimental and clinical observations in partial block and from the results in three cases of complete block, the author shows the value of restoring sinus control in cases of auricular flutter.

Sulphur for Production of Fever in Peripheral Vascular Diseases.—Waller and Allen made observations on pain at the site of injection, on relief of pain in ulcerated or gangrenous regions, on healing of ulcers, on height and duration of fever, and on chill and leukocytosis in fifteen cases of peripheral vascular disease, in which thirty-two intramuscular injections of sulphur, 2 per cent, in olive oil were given. Fever began about seven hours after the injection; the temperature reached an average maximal level of 102 F. and lasted an average of fifty hours. Chills occurred following approximately 50 per cent of the injections, but they were mild when doses of suspension of sulphur of 1.5 or 2 cc. were given. The most satisfactory dose in the treatment of peripheral vascular disease was 1.5 or 2 cc. Greater amounts were rarely necessary to produce effect even later in the course of the injections. Clinical improvement was as marked following intramuscular injection of sulphur as that induced by intravenous injection of typhoid vaccine, and occasionally it was more striking. The pain at the site of the injection varied from moderate to severe and constituted the greatest disadvantage to intramuscular injection of sulphur in olive oil. Sulphur in olive oil, injected intramuscularly, in the treatment of peripheral vascular disease, is most satisfactory for persons of advanced age, for those who are resistant to treatment by vaccine, and for those in whom the pain from the injection is not excessive.

Mediastinal Displacement in Pneumothorax.—Pollock gives roentgen evidence that a disturbance of the normal physiologic intrathoracic pressure during the course of artificial pneumothorax therapy may produce mediastinal displacement when the mediastinum is sufficiently flexible. Mediastinal displacements eventrating into the contralateral lung during the phase of expiration are not of clinical significance. However, fixed displacements in the presence of a relatively nonelastic mediastinal pleura produced by excessive pressure in the pneumothorax cavity may give rise to respiratory embarrassment and a sense of pressure to the stage of discomfort. A reduction of the displacement results in comfort to the patient. Mediastinal displacement depends on flexibility of the mediastinum, the intrathoracic pressure in the pneumothorax cavity, and the relative fixation of the mediastinal contents. A relatively flexible mediastinum usually occurs in younger adults early in artificial pneumothorax treatment, and the mediastinum tends to become less and less flexible as pneumothorax therapy is continued.

Archives of Dermatology & Syphilology, Chicago

24: 537-724 (Oct.) 1931

Sensitizations: Regional, Seasonal, Dietary and Other Influences Accounting for Variations and Fluctuations. M. B. Sulzberger, New York, and R. L. Mayer, Breslau, Germany.—p. 537.
Allergic Skin Reaction. H. L. Alexander, St. Louis.—p. 543.
*Bacterial Protein Fever in Treatment of Syphilis in Rabbit. J. A. Kolmer, Philadelphia.—p. 546.
Eczema Due to Fungi: Report of Case in an Eighteen Months Old Baby. S. M. Peck and G. Salomon, New York.—p. 554.
Schizosaccharomycosis: I. Present Status of Identification of Schizosaccharomyces Hominis and Its Results. T. Benedek, Leipzig, Germany.—p. 557.
*Proliferative Gingivitis of Pregnancy: Cases. S. Monash, New York.—p. 580.
Leukemia Cutis: Case. F. R. Schmidt, Chicago.—p. 587.
*Syphilitic Bursopathy of Verneuil. V. C. Garner and A. G. Schoch, Philadelphia.—p. 591.
*Dermatitis Venenata Due to Shoe Leather: Two Cases. G. M. Lewis, New York.—p. 597.
Xanthoma Diabeticorum: Case. H. J. Templeton and E. E. Chouret, Oakland, Calif.—p. 604.
Kerion Microsporicum with Hematogenous and Ectogenous Microsporids: Case, with Reference to Literature. A. Blumenfeld, Boston.—p. 607.
Macular Atrophy of Skin. L. Chargin and H. Silver, New York.—p. 614.

Protein Fever in Rabbit Syphilis.—Kolmer found that the intravenous injection of typhoid-paratyphoid vaccine into syphilitic rabbits in doses of from 1,000,000 to 100,000,000 per kilogram of weight produced a rise of rectal temperature of from 2 to 4 or 5 degrees Fahrenheit, lasting several hours and reaching the preinjection level within twenty-four hours. The treatment of rabbits with acute testicular syphilis with ten intravenous injections of increasing amounts of typhoid-paratyphoid vaccine at intervals of seventy-two hours did not result in complete cure in any of the animals. Ten intravenous injections of the vaccine at intervals of seventy-two hours, together with five intravenous injections of arsphenamine in doses of 0.002 Gm. per kilogram at weekly intervals, did not result in the complete cure of any of the rabbits with acute testicular syphilis. Ten intravenous injections of the vaccine at intervals of seventy-two hours, together with five intramuscular injections of potassium bismuth tartrate in doses of 0.001 Gm. per kilogram at weekly intervals, did not result in the complete cure of any of the rabbits. The intravenous injection of from 0.008 to 0.4 cc. of Coley's fluid per kilogram of weight into syphilitic rabbits produced a rise of rectal temperature of from 3 to 5 or 6 degrees Fahrenheit which lasted several hours and which reached the preinjection level within twenty-four hours. None of the rabbits with acute testicular syphilis that received ten intravenous injections of increasing amounts of Coley's fluid at intervals of seventy-two hours were completely cured. The rabbits with acute testicular syphilis that received ten intravenous injections of arsphenamine in doses of 0.002 Gm. per kilogram or five intramuscular injections of potassium bismuth tartrate in doses of 0.001 Gm. per kilogram at weekly intervals were not completely cured. In the rabbits given intravenous injections every two days of 1 cc. of citrated blood taken from human beings from twenty-four to thirty-six hours after malarial paroxysms there was no rise in temperature, and demonstrable effects on the course of the acute testicular syphilis were not noted. Therefore, the fever of from 2 to 5 degrees Fahrenheit, which lasted several hours and which was induced in rabbits by intravenous injections of increasing amounts of typhoid-paratyphoid vaccine and Coley's fluid, showed much less effect on the course of acute testicular syphilis than the fever induced by hot baths. While the treatment for acute and chronic syphilis in human beings with intravenous injections of typhoid-paratyphoid vaccine and Coley's fluid alone or in combination with chemotherapy has yielded encouraging results, these agents have been without pronounced curative activity in the treatment for acute testicular syphilis in rabbits.

Gingivitis of Pregnancy.—Monash reports several cases in which growths were observed on the gums of pregnant women. They began to form at a variable time during pregnancy, usually during the earlier months, increased in size unless treated, and spontaneously diminished or disappeared after delivery of the child. The growth is usually part of a generalized gingivitis and represents simply an exaggerated degree of the condition. The name "proliferative gingivitis of pregnancy" is proposed. The growth is inflammatory in origin and should not be classed as a true tumor. Prophylactic measures and treatment are discussed.

Syphilitic Bursopathy. — Garner and Schoch report two additional cases of the syphilitic bursopathy of Verneuil, bringing the present number of cases in the literature to thirty-eight. The prepatellar bursae were involved in each case, both patients being women with late syphilis. The chief clinical features of the conditions are discussed, with especial emphasis on the indolence and frequent symmetry of the process, the negative roentgenographic study, the positive Wassermann reaction and the early response to conservative antisyphilitic therapy. In one of the patients the type of scar deserves emphasis. Unlike the usual thin, atrophic scar of a cutaneous ulcerating gumma, it was depressed, dimpled and adherent to the underlying tissue, and did not give a suggestion of the configuration of the original gummatous ulcer.

Dermatitis Venenata from Shoe Leather.—Lewis reports two cases of dermatitis venenata from shoe leather, which point to the fallacy of considering all dermatoses of the feet to be of fungus origin. The condition may have escaped recognition or it is extremely rare, as it is not mentioned in any of the standard textbooks on dermatology or monographs on dermatitis venenata. A review of the literature failed to yield any reports of cases. However, it seems logical to keep the possibility of such a condition in mind when one is dealing with dermatoses of the feet, especially those that have proved refractory to ordinary methods of therapy.

Archives of Internal Medicine, Chicago

48: 537-720 (Oct.) 1931

*Treatment for Secondary Anemia: Study of Results in 126 Cases. C. S. Keefer, Boston, and C. Yang, Peiping, China.—p. 537.

Metabolism in Myotonia Atrophica: Report of Case. S. Morgulis, A. Young, J. K. Miller and E. Janecek, Omaha.—p. 569.

*Tuberculous Meningitis with Syphilitic Meningitis Terminating in Recovery: Review of Literature. D. W. Kramer and B. B. Stein, Philadelphia.—p. 576.

*Cause of Exophthalmic Goiter: Biochemical Hypothesis. W. S. Reveno, Detroit.—p. 592.

*Elimination of Phenolsulphonphthalein by Kidney: Influence of Pathologic Changes in Liver. J. P. Hanner and G. H. Whipple, Rochester, N. Y. —p. 598.

Tumors of Suprarenal Gland with Especial Reference to Carcinoma of Cortex: Case. J. Meyer and G. Frumess, Chicago.—p. 611.

*Tumors of Heart and Pericardium: Pathology, Symptomatology and Report of Nine Cases. W. M. Yater, Washington, D. C.—p. 627.

*Functional Aspects of Regenerated Hepatic Tissue. T. L. Althausen, San Francisco.—p. 667.

Normal Asymmetry and Unilateral Hypertrophy. G. Halperin, Chicago. —p. 676.

Isolated Congenital Dextrocardia: Report of Two Cases with Unusual Electrocardiographic Findings: Anatomic, Clinical, Roentgenologic and Electrocardiographic Studies of Cases Reported in Literature. S. S. Lichtman, New York.—p. 683.

Secondary Anemia.—In a study of the treatment in 126 cases of anemia due to various causes, Keefer and Yang noted the following facts: The recovery from anemia due to chronic loss of blood may be accelerated following the administration of liver and iron. In some cases, transfusion of blood was necessary owing to the severity of the anemia. Continued loss of blood in small amounts and sepsis retard recovery. Anemias resulting from inadequate or faulty diets were often associated with the avitaminoses or other deficiency disorders. Many of these patients recovered following a well balanced diet, and in some regeneration of the hemoglobin was accelerated by the use of liver or iron. The anemia associated with chronic dysentery usually appeared in patients who had been on inadequate diets and who had had active dysentery for two months or longer. Hemorrhage, infection and gastric anacidity played a minor part in the production of the anemia. In the group as a whole, all the clinical features that are said to be characteristic of pernicious anemia were observed, including atrophy of the lingual papillae, subacute combined sclerosis, gastric anacidity and anemia responding to liver extract. These observations lend support to the hypothesis that pernicious anemia is a deficiency disease. Anemia associated with infestation due to hookworm may be cured with iron, or liver and iron, while the patients continue to carry the worms. Malnutrition and faulty diets are important factors in predisposing such patients to anemia. Women with the anemias of pregnancy recover following the transfusion of blood or following the administration of liver and iron. In some cases, iron alone is positive; in others, liver or liver extract is potent in increasing the rate of recovery. Recovery from the anemia associated with kala-azar may be extremely slow in spite of treatment with antimony compounds, transfusions of blood and ingestion of liver and iron. In this condition it appears as if the damage to the bone marrow were responsible for the anemia. When recovery occurred in many of the foregoing types of anemia, the reticulocytes were increased. Generally speaking, the number of reticulocytes depends on the level of the red cell count at the beginning of the treatment, although there were exceptions in cases in which one observed relatively large increases in reticulocytes with a high red blood cell count. In most of these cases the hemoglobin content was low. In other cases an increase in the reticulocytes was not observed following treatment. In some of these cases the reticulocytes had been increased before treatment was begun; in others, they were never increased. When liver ash was given in amounts equivalent to 300 Gm. of whole liver a day, containing 21 mg. of iron, striking results were not observed. In several instances there was a moderate increase in the hemoglobin, red blood cells and reticulocytes, and this response was usually observed in patients who subsequently recovered promptly on larger doses of iron. In some cases of anemia, liver and iron were more effective than when either one was given alone. In others, the maximum effect was observed following the use of iron. Liver extract was of demonstrable value in some of the nutritional anemias of childhood, in some of the anemias associated with pregnancy and in chronic dysentery. It was of little value in posthemorrhagic anemia. From the authors' observations, it was not possible to predict in every case which form of treatment would be most beneficial. If complete recovery is not observed in patients following the use of iron, liver should be added. In many patients who do not respond to liver or iron there is usually an adequate cause to explain their failure. Infection and pathologic processes of the bone marrow are of the greatest importance. The response in various clinical anemias following the ingestion of food substances other than liver, kidney or iron needs further investigation.

Tuberculous Meningitis.—Kramer and Stein give the case history of a Negro who had evidence of syphilitic meningitis; subsequent observations of tuberculous meningitis were made, and a favorable termination is reported. A review of the literature revealed a number of contributions on the curability of tuberculous meningitis and numerous reports of cures. This number was considerably reduced because of insufficient scientific data. Seventy-three cases of presumably authentic cures were collected. A study of this group of cases does not enlighten one with information that may be of value in the

direct treatment for this disease in the future. Cures have been attributed to various factors, such as the age and the resistance of the patient and a low virulence of the organism. Statistics of the collected cases show the highest percentage of cures among patients above 20 years of age (33 per cent), and the lowest percentage in infants. The authors believe that the traditional and fixed idea that a patient with tuberculous meningitis must die should be reconsidered. No doubt, a recovery is extremely rare, but no one can foretell when this unexpected favorable termination may occur. The tendency to discard the diagnosis of tuberculous meningitis and disregard such laboratory observations as the presence of tubercle bacilli and successful inoculation into guinea-pigs, merely because the patient recovered, seems unscientific and illogical.

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Relationship Between Environment and Basal Insensible Loss of Weight. F. H. Wiley and L. H. Newburgh, Ann Arbor, Mich.—p. 689.
Method for Determination of Heat Production Over Long Periods of Time. L. H. Newburgh, F. H. Wiley and F. H. Lashmet, Ann Arbor, Mich.—p. 703.
Improved Method for Determination of Water Balance. F. H. Wiley and L. H. Newburgh, Ann Arbor, Mich.—p. 723.

Doubtful Nature of "Luxuskonsumption." F. H. Wiley and L. H. Newburgh, Ann Arbor, Mich.—p. 733.
Determination of Potassium in Cardiac Muscle and Presumable Influence of Beta Radiations on Rhythm. L. C. Scott, New Orleans.—p. 745.
*Gastric Secretion After Histamine: Its Evaluation as Quantitative Test in Digestive Disorders. G. D. Gammon and T. G. Miller, Philadelphia. —p. 755.
Mineral Exchanges of Man: III. Mineral Metabolism During Treatment of Case of Polycythemia Vera. S. H. Bassett, T. Killip and W. S. McCann, Rochester, N. Y.—p. 771.
*Insulin Absorption by Conjunctival Membranes in Rabbits. C. D. Christie and R. F. Hanzal, Cleveland.—p. 787.
*Electrocardiographic Studies During Attacks of Angina Pectoris and Other Paroxysmal Pain. M. L. Siegel and H. Feil, Cleveland.—p. 795.
Studies in Congestive Heart Failure: XIII. Relation of Dyspnea of Exertion to Oxygen Saturation and Acid-Base Condition of Blood. G. E. Cullen, T. R. Harrison, J. A. Calhoun, W. E. Wilkins and M. M. Tims, Nashville, Tenn.—p. 807.
Id. XIV. Orthopnea: Its Relation to Ventilation, Vital Capacity, Oxygen Saturation and Acid-Base Condition of Arterial and Jugular Blood. J. A. Calhoun, G. E. Cullen, T. R. Harrison, W. L. Wilkins and M. M. Tims, Nashville, Tenn.—p. 833.
Comparison of Racemization Curves for Urinary, Edema Fluid, and Blood Plasma Proteins. J. W. Cavett and R. B. Gibson, Iowa City. —p. 857.
*Nutritional Edema: Observations on Relation of Serum Proteins to Occurrence of Edema and Effect of Certain Inorganic Salts. A. A. Weech and S. M. Ling, Peiping, China.—p. 869.
Studies on Electrical Systole (Q-T Interval) of Heart: II. Its Duration in Cardiac Failure. S. N. Cheer and F. R. Dieuaide, Peiping, China.—p. 889.
*Effects of Sustained Pituitary Antidiuresis and Forced Water Drinking in Epileptic Children: Diagnostic and Etiologic Study. I. McQuarrie and D. B. Peeler, Rochester, N. Y.—p. 915.
Plasma Proteins in Relation to Blood Hydration: VI. Serum Proteins in Nephritic Edema. J. P. Peters, F. S. Bruckman, Anna J. Eisenman, Pauline N. Hald and A. M. Wakeman, New Haven, Conn.—p. 941.

Gastric Secretion After Histamine.—Gammon and Miller noted that the maximal free gastric acidity after histamine and after Liebig's extract in a miscellaneous group of patients varied to a far greater extent from the mean value than it did after the gruel meal in a similar group. No correlation could be recognized between the maximal free acidity after histamine and after a gruel meal when the two tests were done on the same group of patients. The variations in the acidity after histamine could not be correlated, except in the achlorhydrias, with the diagnoses of the cases. No significant variations in acidity or volume secretion after histamine were noted in correspondence with the age or the sex of the patients. The volume of secretion after histamine was greatest on the average in the group of cases of duodenal ulcer and duodenitis, but it bore no direct relationship to the degree of acidity, except that it was lower in those cases with zero acidity. On the basis of their observations the authors conclude that the histamine test, though valuable to determine the ability of the stomach to secrete acid, is not serviceable as a routine method of gastric analysis, because the variations in its results are great without obvious cause. The gruel meal has an advantage as a routine test of gastric acidity in that its results may be more nearly correlated with the clinical diagnoses. The explanation for the superiority of the gruel meal probably lies in the fact that it contains buffer substances which permit the stomach to adjust the acidity of its total contents to a more definite level, a level that is correlated with existing conditions.

Insulin Absorption by Conjunctiva.—Christie and Hanzal describe experiments in which they found that insulin instilled into the conjunctiva is absorbed with great rapidity and gives rise to a fairly constant and consistent fall of blood sugar levels in rabbits. The drop in blood sugar level persists for from four to five hours as against from five to six hours by the subcutaneous route. Apparently it requires about 60 per cent more insulin by this method of administration than by the subcutaneous route. The authors have seen nothing to make them believe that commercial insulin is irritating to the eyes of animals.

Angina Pectoris.—Siegel and Feil report electrocardiographic observations in eleven cases made during transient attacks of angina pectoris. In eight of these patients there was inversion of the T wave and (or) inversion of the S-T segment of the curve. In some instances a negative T became more deeply depressed. These changes disappeared after subsidence of the pain. This evidence supports the conception that transient anginal attacks are due to myocardial ischemia, presumably due to alteration in coronary artery flow. Electrocardiograms taken during other types of paroxysmal pain (labor pains, renal and gallstone colic) did not show any changes in the T wave or S-T portion of the curves.

Nutritional Edema.—Weech and Ling discuss the relation of serum protein deficiency to various types of edema, both experimental and clinical. Attention is called to other factors and in particular to the rôle of several inorganic salts in modifying the effect of protein deficiency alone. In a series of patients suffering from nutritional edema, who were studied during both the active and the convalescent stages, it was found that when the level of serum albumin was greater than 2.9 Gm. per hundred cubic centimeters edema was never observed and that when the level fell below 2.5 Gm. per hundred cubic centimeters edema was invariably present. The correlation with total serum protein, although not so close, was sufficient to indicate a critical level for edema close to 5 Gm. per hundred cubic centimeters. Serum globulin was exceedingly variable: decreased, normal and increased values all were found in association with edema. Decreased globulin generally occurred only when the albumin was also decreased and thus was usually present in association with edema. No relation of cause and effect was considered, however, to exist between lowered globulin and edema. The results of metabolism observations on two of these patients are given. In both cases the combined administration of sodium chloride and sodium bicarbonate led to rapid gain in weight, marked increase in edema and depression of chloride excretion in the urine. In one of the patients these effects could not be reproduced after feeding of an adequate diet had resulted in a return to normal of the serum protein. The impossibility of offering an exact explanation of all the effects observed is pointed out, although it is stated that the results are in harmony with the view that the cation sodium is more intimately related to the causation of edema than the anion chloride.

Water in Epilepsy.—McQuarrie and Peeler present experimental and clinical data to show the effects of sustained pituitary antidiuresis and water drinking on mildly epileptic as contrasted with nonepileptic children. It is shown that typical grand mal seizures can be induced within twelve to forty-eight hours in the epileptic, but not in the nonepileptic subject, by giving water at the rate of from 2 to 5 cc. per kilogram of body weight hourly while maintaining effective pituitary antidiuresis. This difference in response between epileptic and nonepileptic patients may be helpful in establishing the diagnosis early in an obscure case. Under the conditions of the experiments described by the authors, dilution of the extracellular body fluids appears to be an essential factor in the induction of seizures since administration of an amount of sodium chloride just sufficient to prevent this tends to interfere with their occurrence. The results presented lend strong support to the view that the mechanism for controlling semipermeability of the brain cell membranes is inherently defective in the epileptic patient.

Journal of Comparative Psychology, Baltimore

12: 257-256 (Oct.) 1931

Additional Experiments on Homing of Carpenter- and Mining-Bees. P. Rau, Kirkwood, Mo.—p. 257.
Relative Efficacy of Free and Guided Learning When Equated in Terms of Time. R. H. Waters and Alma L. Ellis, Little Rock, Ark.—p. 263.
Continuity of Movement and Error Elimination in Stylus Maze. L. L. Mays, Chicago.—p. 279.
In Reply to Landis. M. N. Chappell, New York.—p. 289.
Effect of Incorrect Guidance on Human Maze Learning. R. H. Waters, Little Rock, Ark.—p. 293.
Studies in Individual Differences in Maze Ability: IV. Constancy of Individual Differences; Correlation Between Learning and Relearning. R. C. Tryon, San Francisco.—p. 303.
A Test of "Directional Sense" in Cats and Pigeons. R. H. Gundlach, Seattle.—p. 347.

Journal of Industrial Hygiene, Boston

13: 293-332 (Nov.) 1931

Studies in Dust Retention: III. Factors Involved in Retention of Inhaled Dusts and Fumes by Man. C. E. Brown, Boston.—p. 293.
Hypertension in Industry. E. J. Kirk, Omaha.—p. 314.
Injuries Produced in Organism by Discharge from Impulse Generator. O. R. Langworthy and W. B. Kouwenhoven, Baltimore.—p. 326.

direct treatment for this disease in the future. Cures have been attributed to various factors, such as the age and the resistance of the patient and a low virulence of the organism. Statistics of the collected cases show the highest percentage of cures among patients above 20 years of age (33 per cent), and the lowest percentage in infants. The authors believe that the traditional and fixed idea that a patient with tuberculous meningitis must die should be reconsidered. No doubt, a recovery is extremely rare, but no one can foretell when this unexpected favorable termination may occur. The tendency to discard the diagnosis of tuberculous meningitis and disregard such laboratory observations as the presence of tubercle bacilli and successful inoculation into guinea-pigs, merely because the patient recovered, seems unscientific and illogical.

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FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anesthesia, Manchester

9: 1-56 (Oct.) 1931

Subarachnoid Block; General Analgesia; "Spinal" Anesthesia; Respiratory Paralysis; Fallacies and Methods. W. H. Jones.—p. 3.
*System of Anesthesia for Dental Anesthetist. F. P. de Caux.—p. 22.
Premedication. S. Rowbotham.—p. 41.

System of Anesthesia for Dental Anesthetist.—De Caux believes that nitrous oxide, properly administered, is the safest anesthetic agent for all ages and conditions. It is ideal for all operations on the mouth and pharynx. It is best administered undiluted until the patient is anesthetized. Asphyxial symptoms should never be allowed to persist but should immediately be relieved by oxygen either from the air or from a cylinder. Oxygen can easily be administered by the nose without interference with the surgeon. For extensive surgical work on the mouth it is best administered by way of a tube passed through the nose into the trachea. Every opportunity should be taken to make use of premedication, especially in children.

British Journal of Experimental Pathology, London

12: 279-356 (Oct.) 1931

Serum Treatment of Lobar Pneumonia: Study in Immunology. R. R. Armstrong.—p. 279.
Mucus Secretion in Acute Experimental Inflammation of Colon, and Other Mucous Membranes of Cat: Histologic Changes. H. Florey and R. A. Webb.—p. 286.
Mechanism of Goblet-Cell Secretion in Mammal: Effects of Cyanide. H. Florey.—p. 301.
Significance of Natural Variations in Structure and Cortical Lipoid of Mouse Suprarenal. R. Whitehead.—p. 305.
Glandular Fever: II. Protozoal Nature of Experimental Disease. J. O. W. Bland.—p. 311.
Human Skin Tolerance to Diphtheria Toxin, and Immunizability. S. F. Dudley.—p. 319.
Effect of Repeated Calf Passage on Immunizing Power of Vaccine Lymph. P. A. Clearkin and D. A. Skan.—p. 322.
Note on Toxicity of Amyl-Meta-Cresol. W. A. Broom.—p. 327.
Disinfectant and Antiseptic Properties of Amyl-Meta-Cresol. C. E. Coulthard.—p. 331.
Further Observations on Qualitative Differences in Antitoxic Fractions Prepared from Same Sample of Plasma. Mollie Barr and A. T. Glenny.—p. 337.
Mechanism of Voges-Proskauer Reaction and Diacetyl Reaction for Proteins. R. A. Q. O'Meara.—p. 346.

British Journal of Physical Medicine, London

6: 139-158 (Oct.) 1931

*Hyperpyrexia: New Field for Physical Therapeutics. C. A. Neymann.—p. 141.
*Some Clinical Observations on Relationships Between Chronic Rheumatism and Throat Infection. J. D. Hindley-Smith.—p. 145.
Distribution of Ultraviolet Radiation in Room. H. E. Beckett.—p. 146.
On Manipulative Treatment of Tendon Lesions. I. H. Lloyd-Williams.—p. 148.
Radiologic Diagnosis. B. Leggett.—p. 151.

Hyperpyrexia.—According to Neymann, hyperpyrexia can easily be produced by diathermy and will undoubtedly prove to be a beneficial procedure in many acute and chronic diseases. At present its value in the treatment of dementia paralytica exceeds that of any other known form of therapy. With correct technic this method of producing fever can be controlled with accuracy. It permits of dosage both in time and in quantity elements. The dangers are exceedingly slight and can be entirely overcome by proper care and attention.

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British Journal of Radiology, London

4: 477-532 (Oct.) 1931

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British Journal of Tuberculosis, London

25: 161-208 (Oct.) 1931

*Bovine Tuberculosis and Human Infection. D. S. Rabagliati.—p. 161.
*Similarity of Certain Tuberculous Cervical Abscesses and Branchial Cysts. H. Bailey.—p. 167.
Diagnosis of Early Pulmonary Tuberculosis. H. V. Morlock.—p. 170.
Note on Tuberculosis and Suicide. A. N. Cox.—p. 173.
American Impressions of British Tuberculosis Conference. Louise Strachan.—p. 175.

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Similarity of Cervical Abscesses and Branchial Cysts.—Bailey calls attention to the fact that the physical signs of a branchial cyst and a tuberculous abscess are practically identical. The patient presents himself with a cystic swelling in the upper third of the neck, deep to the upper third of the sternomastoid, coming around the anterior border of that muscle. This is the commonest location of a tuberculous abscess [illegible] also the constant situation of a branchial cyst. The [illegible]

Journal of Infectious Diseases, Chicago

49: 271-365 (Oct.) 1931

Thermophilic Micro-Organisms from Imported Canned Shallots (Onions). P. S. Prickett, Evansville, Ind.—p. 271.
Electrophoretic Study of Sterile Filtrates of Cultures of Streptococci of Scarlet Fever and Erysipelas. L. E. Shinn, Chicago.—p. 281.
Mycobacterium: Ergosterol Content of Certain Species and Effect of Ergosterol on Their Growth. P. S. Prickett and O. N. Massengale, Evansville, Ind.—p. 297.
Tinctorial Transmutations of Acid-Fast Micro-Organisms and Virulence of Tubercle Bacilli. F. Eberson and Marion A. Sweeney, San Francisco.—p. 303.
Microbic Dissociation in Brucella Group. M. S. Marshall and Dorothy Jared, San Francisco.—p. 319.
Pyrogenic Reaction to Concentrated Antipneumococcus Serums, with Respect to Certain Serum Constituents. L. D. Felton and Gladys Kauffmann, Boston.—p. 337.
*Influence of Artificial Fever on Course of Experimental Poliomyelitis. C. W. Jungeblut and N. Kopeloff, New York.—p. 348.
Purification of Cultures of Treponema Microdentium by Centrifugation. E. E. Ecker and L. A. Weed, Cleveland.—p. 355.
*Various Colonies of Hemolytic Streptococci in Scarlet Fever. Ruth Tunnicliff, Chicago.—p. 357.

Artificial Fever and Experimental Poliomyelitis.—The different types of data obtained by Jungeblut and Kopeloff are somewhat conflicting, which makes it difficult for them to draw conclusions. Within the limitations of the experimental material, it appears to be proved that noninfectious fever of considerable intensity applied during the period of incubation, but maintained only over comparatively short periods of time, is not capable of altering the course of experimental poliomyelitis in the monkey to any significant extent. The same holds true for infectious fever produced by inoculation with Trypanosoma equiperdum, when the two infections are induced simultaneously. With a poliomyelitic infection superimposed on an existing febrile trypanosomiasis there may be a distinct prolongation of the period of incubation of the poliomyelitic infection, undoubtedly indicating some attenuation of the virus. Since the latter observation is based on one monkey alone, the authors do not know how regular this occurrence is. With syphilis a definite spirocheticidal effect in vivo may apparently be obtained by febrile temperatures that cause no obvious damage to the host. As regards poliomyelitis, it would seem that the production of a sufficiently intense fever to bring about destruction of the virus in vivo is not possible within a safe zone of raised temperature.

Hemolytic Streptococci in Scarlet Fever.—During the course of scarlet fever, especially during convalescence and in complications, Tunnicliff isolated atypical hemolytic streptococci alone or associated with typical Streptococcus scarlatinae. They appeared to have dissociated from the typical, or "normal," slightly granular, conical scarlatinal colonies and differed from them by forming on heated blood agar (chocolate agar) granular or smooth convex colonies and the rough conial colonies did not change chocolate agar; the granular convex colonies turned it green, while the smooth convex colonies varied in this respect. By the opsonic test, the cocci from dissociated colonies were not opsonified like the group of streptococci specific for scarlet fever, but by subculturing they were reverted, both colonically and immunologically, to typical scarlatinal streptococci.

Military Surgeon, Washington, D. C.

69: 483-578 (Nov.) 1931

Obesity and Its Treatment. G. C. Beach.—p. 483.
Diet and Disease: Just How Much Have We Learned About Their Real Relationship? M. H. Epstein.—p. 489.
The A. R. A. in Russia. W. R. Dear.—p. 499.
Since the Days of the Empire. G. F. Lull.—p. 512.
Congenital Absence of Radius and Club Hand: Case. D. N. W. Grant.—p. 518.
School of Aviation Medicine. B. B. Warriner.—p. 522.

New England Journal of Medicine, Boston

205: 841-892 (Oct. 29) 1931

Studies in Asthma: XIV. Bronchoscopy in Asthma. F. L. Weille, Boston.—p. 848.
*Immunity Factors in Recovery from Lobar Pneumonia and Results of Specific Treatment in Type I Pneumococcus Pneumonia. F. T. Lord, Boston.—p. 854.
George W. Gay Lectures in Medical Ethics. W. H. Robey, Boston.—p. 856.

Results of Specific Treatment in Type I Pneumococcus Pneumonia.—Lord has noted that specific serum treatment of type I pneumococcus lobar pneumonia lowers the mortality when used during the first three days of the illness but is ineffective after this interval. Humoral immunity is to be regarded as an important cause of recovery from pneumococcus lobar pneumonia. The discrepancy between the small amount and inconstant presence of protective substances in the blood and the decisive nature of crisis, occasional recovery at the usual time in spite of the early appearance of protection, and the ineffectiveness of serum treatment after the third day of the disease, suggest that other factors may also be concerned in the defensive mechanism.

New Orleans Medical and Surgical Journal

84: 311-428 (Nov.) 1931

Operative Correction of Uterine Retrodisplacements. W. T. Dannreuther, New York.—p. 311.
One Thousand Cases of Uterine Fibroids in Negro Race. H. B. Alsobrook, New Orleans.—p. 317.
Radium in Treatment of Certain Diseases of Uterus. J. W. Barksdale, Jackson, Miss.—p. 326.
Uterosalpingography with Lipiodol. J. P. Wall, Jackson, Miss.—p. 329.
New Anastomosis Button for Gastro-Intestinal Surgery. J. T. Nix, New Orleans.—p. 332.
Diagnosis and Significance of Splenic Enlargement. J. B. Guthrie, New Orleans.—p. 340.
Rheumatic Fever and Rheumatic Heart Disease. T. M. McMillan and C. F. Nichols, Philadelphia.—p. 346.
Home Treatment of Tuberculosis. W. A. Toomer, Tupelo, Miss.—p. 357.
Hypertension. T. R. Beach, Ellisville, Miss.—p. 362.
Lobar Pneumonia and Its Treatment. E. L. Walker, Magee, Miss.—p. 369.
Uses of Sodium Ethyl-1 Methyl-Butyl-Barbiturate (Pentobarbital-Sodium) in Medicine and Surgery. G. F. Carroll, Biloxi, Miss.—p. 375.
Standard Treatment of Malaria (Preliminary Report). J. M. Adams, Baton Rouge, La.—p. 379.
History Taking. A. H. Little, Oxford, Miss.—p. 388.

Ohio State Medical Journal, Columbus

27: 841-920 (Nov.) 1931

Advances in Our Knowledge of Etiology and Treatment of Chronic Arthritis and Rheumatic Manifestations. W. C. Stoner, Cleveland.—p. 861.
Hysterectomy. R. B. Drury, Columbus.—p. 863.
Maternal Mortality and Morbidity in Ohio. B. H. Carroll, Toledo.—p. 865.
Some Suggestions for Better Cooperation Between Psychiatrists and Lawyers. C. E. Kiely, Cincinnati.—p. 869.
Bacteriology of One Hundred Consecutive Tonsils. C. L. Spohr, Columbus.—p. 872.
Practical Professional Problems of Rural Health Administration. E. R. Hiatt, Troy.—p. 877.
Cardiac Pain: Clinical Consideration. F. Jukes, Akron.—p. 879.

Southwestern Medicine, Phoenix, Arizona

15: 449-502 (Oct.) 1931

Effects of Liver Diet on Nervous System Symptoms in Pernicious Anemia. W. C. Menninger, Topeka, Kan.—p. 449.
Medical Jurisprudence. H. H. Clark, Denver.—p. 453.
Conservative Treatment of Cancer of Mouth and Lower Lip. J. M. Martin, Dallas, Texas.—p. 458.
Diagnosis and Management of Rectal Cancer. C. Rosser, Dallas, Texas.—p. 464.
Personal Observations of Cholecystitis. J. Vance, El Paso, Texas.—p. 467.
Brain Injuries. S. D. Swope, El Paso, Texas.—p. 470.
Hypertensive Disease. D. G. Stine, Columbia, Mo.—p. 473.
Trichinosis: Report of Cases. J. A. Rawlings, C. Awe and J. M. Rawlings, El Paso, Texas.—p. 477.
Proctologic Odds and Ends. C. Rosser, Dallas, Texas.—p. 479.
Case of Tularemia. J. L. Murphy, El Paso, Texas.—p. 481.
Oral Diagnosis: With Especial Attention to Devital Roentgen-Ray Negative Tooth. L. A. Neil, El Paso, Texas.—p. 482.
Open Reduction in Treatment of Fractures, Selection of Cases, Types and Methods. A. C. Carlson, Jerome, Ariz.—p. 484.

Yale Journal of Biology & Medicine, New Haven

4: 1-115 (Oct.) 1931

Historical Studies on Nature and Treatment of Gunshot Wounds from Fifteenth Century to Present Time. T. Billroth, Berlin. Translated by C. P. Rhoads, Springfield, Mass.—p. 3.
Acute Hemorrhagic Necrosis of Pancreas: Four Cases. R. M. Goldstein.—p. 37.
Clinical Diagnosis of Intestinal Tuberculosis. E. H. Rubin, New York.—p. 45.
Bacterial Mutations. F. D'Herelle, New Haven, Conn.—p. 55.
Preclinical Sciences and Human Biology. H. S. Burr, New Haven, Conn.—p. 63.
Blood Picture of Normal Laboratory Animals. R. A. Scarborough, San Francisco.—p. 69.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anesthesia, Manchester

9: 1-56 (Oct.) 1931

Subarachnoid Block; General Analgesia; "Spinal" Anesthesia; Respiratory Paralysis; Fallacies and Methods. W. H. Jones.—p. 3.
*System of Anesthesia for Dental Anesthetist. F. P. de Caux.—p. 22.
Premedication. S. Rowbotham.—p. 41.

System of Anesthesia for Dental Anesthetist.—De Caux believes that nitrous oxide, properly administered, is the safest anesthetic agent for all ages and conditions. It is ideal for all operations on the mouth and pharynx. It is best administered undiluted until the patient is anesthetized. Asphyxial symptoms should never be allowed to persist but should immediately be relieved by oxygen either from the air or from a cylinder. Oxygen can easily be administered by the nose without interference with the surgeon. For extensive surgical work on the mouth it is best administered by way of a tube passed through the nose into the trachea. Every opportunity should be taken to make use of premedication, especially in children.

British Journal of Experimental Pathology, London

12: 279-356 (Oct.) 1931

Serum Treatment of Lobar Pneumonia: Study in Immunology. R. R. Armstrong.—p. 279.
Mucus Secretion in Acute Experimental Inflammation of Colon, and Other Mucous Membranes of Cat: Histologic Changes. H. Florey and R. A. Webb.—p. 286.
Mechanism of Goblet-Cell Secretion in Mammal: Effects of Cyanide. H. Florey.—p. 301.
Significance of Natural Variations in Structure and Cortical Lipoid of Mouse Suprarenal. R. Whitehead.—p. 305.
Glandular Fever: II. Protozoal Nature of Experimental Disease. J. O. W. Bland.—p. 311.
Human Skin Tolerance to Diphtheria Toxin, and Immunizability. S. F. Dudley.—p. 319.
Effect of Repeated Calf Passage on Immunizing Power of Vaccine Lymph. P. A. Clearkin and D. A. Skan.—p. 322.
Note on Toxicity of Amyl-Meta-Cresol. W. A. Broom.—p. 327.
Disinfectant and Antiseptic Properties of Amyl-Meta-Cresol. C. E. Coulthard.—p. 331.
Further Observations on Qualitative Differences in Antitoxic Fractions Prepared from Same Sample of Plasma. Mollie Barr and A. T. Glenny.—p. 337.
Mechanism of Voges-Proskauer Reaction and Diacetyl Reaction for Proteins. R. A. Q. O'Meara.—p. 346.

British Journal of Physical Medicine, London

6: 139-158 (Oct.) 1931

*Hyperpyrexia: New Field for Physical Therapeutics. C. A. Neymann.—p. 141.
*Some Clinical Observations on Relationships Between Chronic Rheumatism and Throat Infection. J. D. Hindley-Smith.—p. 145.
Distribution of Ultraviolet Radiation in Room. H. E. Beckett.—p. 146.
On Manipulative Treatment of Tendon Lesions. I. H. Lloyd-Williams.—p. 148.
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American Impressions of British Tuberculosis Conference. Louise Strachan.—p. 175.

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British Medical Journal, London

2: 787-832 (Oct. 31) 1931

*Problem of Child in Tuberculous Household. R. C. Wingfield.—p. 787.
*Broken Nose. E. W. Williams.—p. 791.
*Rôle of Pituitary in Etiology of Cancer. W. Susman.—p. 794.
*Torsion of Ovarian Cyst in Children. W. A. Steel.—p. 798.
Gangrene of Skin of Diphtheritic Origin. J. S. Anderson.—p. 800.

Problem of Child in Tuberculous Household.—Wingfield believes that the general practitioner must view the problem of the child in the tuberculous household mainly as a clinical problem; his duty is to the child and its parents rather than to the community at large. He should not have to examine all the contact children in his practice by the Mantoux reaction for evidence of infection and by the roentgen ray for evidence of lesion. He should not have to deal with these patients personally; these investigations should be made for him, and he should have a knowledge of their results. His duty is to watch and to turn his attention to the proper hygiene of the home. He must realize the danger not of exposure but of continuous exposure; that is to say, he must use every effort to sterilize the open case which is the source of contact, and to dilute the infection either by treatment or by segregation, partial or complete. Contact infants must be his especial care in this direction. He must teach the parent and the adult how by attention to a few simple hygienic rules they can minimize the danger to the children almost to the vanishing point. It is not his duty, and would be a waste of his time and injurious to his practice, if he were to say to the tuberculous mother that she must never see her child again. When the contact children of his practice reach adolescence is the time he must be most wise and wary. That is the time when the parent and child need guidance in the choice of work, mode of life and environment. That is the time when the roentgen ray will be particularly useful, for apical infiltration in childhood and adolescence, although apparently latent, always goes on to definite clinical pulmonary tuberculosis if untreated.

Broken Nose.—According to Williams, the common type of "broken nose" is due to lateral (but not backward) displacement of both nasal bones with imbrication. Treatment consists of disimpaction, free mobilization of both bones, and symmetrical molding together. No splints are needed. When the nose has been crushed, internal splinting is required to restore the profile; the author describes a convenient form of splint. Resection of the septum may be needed. When a portion of the maxilla is impacted in the antrum, access is obtained by the canine fossa route. If much damage has been caused to skin and soft parts, every effort must be made to conserve tissue, limit sepsis, and prevent adhesions.

Pituitary in Etiology of Cancer.—On the basis of the hypothesis that in cancer cases the anterior pituitary was overactive, and the posterior pituitary underactive, two patients with advanced cancer were treated by Susman with solution of pituitary alone, and five with solution of pituitary and theelin. All were placed on a diet low in carbohydrate. An epithelioma began to separate off and was enucleated after seven weeks of this treatment. The growing edge disappeared in five days. All the patients showed regressive changes in the tumors, and life appeared to be definitely prolonged.

Torsion of Ovarian Cyst in Children.—Steel reviews more than twenty-five cases of torsion of ovarian cyst in children and gives an illustrative case. Ovarian tumor, though rare, increases in frequency with the age of the child and is most commonly encountered between the ages of 10 and 14. Torsion, although very rare, is the commonest complication of these tumors. A correct diagnosis of the condition is decidedly more often the exception than the rule, in spite of the fact that a constant clinical picture is found in almost every case. The typical features present are a history of similar but less severe attacks, the sudden onset of pain, an increase of temperature and pulse rate, the palpable abdominal tumor with overlying tenderness and rigidity, and the tender cystic mass, which can be made out by rectum. The diagnosis is sometimes very difficult, the lesion for which torsion of a cyst is most often mistaken being an appendical abscess.

Journal of Anatomy, London

66: 1-156 (Oct.) 1931

Some Observations on Myelination in Human Central Nervous System. M. F. L. Keene and E. E. Hewer.—p. 1.
History of Prochordal Plate in Rabbit. Y. H. Aasar.—p. 14.
Further Note on Prochordal Plate in Man. J. P. Hill and J. Florian.—p. 46.
Partial Duplication of Notochord in Human Embryo of 11 Mm. Greatest Length. T. B. Johnston.—p. 48.
Growth Changes in Bushman Mandible. L. H. Wells.—p. 50.
Craniocleido Dysostosis and Normal Skull Formation. R. W. Reid.—p. 64.
Intrapontile Part of Motor Root of Facial Nerve. E. Vernon.—p. 66.
Structure of Thoracic Inferior Vena Cava in Rabbit and in Cat, and Its Functional Significance. K. J. Franklin.—p. 76.
Constitution of Ligamentum Cruciatum Cruris. T. T. Stamm.—p. 80.
Secondary Os Calcis. J. Mercer.—p. 84.
Circumaortic Venous Rings. P. N. B. Odgers.—p. 98.
Paired Oviducts in Fowl. F. A. E. Crew.—p. 100.
Development of Hyoid Bar and Rays in Plagiostomi. F. H. Edgeworth.—p. 104.
Craniometric Memoirs: IV. Horizontal Zones of Facial Norma in Modern and Fossil Man. J. Cameron.—p. 114.
Note on Relative Lengths of First and Second Toes of Human Foot. B. M. Skinner.—p. 123.

Medical Journal of Australia, Sydney

2: 405-436 (Oct. 3) 1931

*Surgical Treatment of Constipation. H. C. Trumble.—p. 405.
*Hodgkin's Disease: A Treatise. L. Utz and Leila Keatinge.—p. 412.

Surgical Treatment of Constipation.—Trumble believes that it is possible that section of the hypogastric nerve alone would be sufficient to permit of relaxation of the sphincters and to cure some patients with Hirschsprung's disease, but until more is known about the subject it would probably be wise to adopt a more radical procedure. The simplest way to do this is to divide the lumbar splanchnic nerves just proximal to the inferior mesenteric ganglion. The author gives reports of three cases in which this was done with satisfactory results.

Hodgkin's Disease.—According to Utz and Keatinge, tuberculous lymphadenitis, which is so often mistaken for Hodgkin's disease, can be differentiated by serologic tests in children and by biopsy in adults. The histologic appearances in the tuberculous lymph nodes are not in any way similar to those found in Hodgkin's disease. True splenic anemia can be identified clinically, as a rule by the absence of palpable abdominal lymph nodes, by the absence of ascites or jaundice, or many of the pressure symptoms directly due to the presence of enlarged lymph nodes in Hodgkin's disease. To differentiate Gaucher's disease, which is incidentally often associated with enlarged superficial nodes, is a different matter. The familial occurrence of Gaucher's disease is practically the only guide short of biopsy of the nodes, which, however, may also demonstrate some resemblance to Hodgkin's disease. In spite of all that has been written about the differentiation of lymphosarcoma from Hodgkin's disease, the authors are inclined to agree with Ewing by stating that the lymphocytoma type of lymphosarcoma in which the lymphocyte and not the endothelial cell is proliferated can be differentiated at a glance by microscopic examination. But when the endothelial elements of lymph nodes proliferate to produce a so-called lymphosarcoma of the endothelial type, differentiation either clinically or on histologic grounds is practically impossible. In differentiation one relies solely on the appearance of the Dorothy Reed cells, but a great number of cases of Hodgkin's disease are then classified as lymphosarcoma. Clinical differentiation between these two diseases is well nigh impossible. Leukemia can be identified in practically all instances by the blood picture and, as the pseudoleukemia of Sternberg is still a disease without a clinical entity, differentiation is impossible.

South African M. Assn. Journal, Cape Town

5: 617-656 (Oct. 10) 1931

Constipation. S. F. Silberbauer.—p. 619.
Constipation. G. J. Joubert.—p. 623.

Tubercle, London

13: 49-96 (Nov.) 1931

Sanocrysin Treatment. V. S. Christensen.—p. 49.
Pathogenic Properties of B C G. Critical Review of Experiments of K. T. Sasano and E. M. Medlar. A. Boquet.—p. 62.

National Medical Journal of China, Shanghai

17:393-686 (Aug.-Oct.) 1931

Amebic Abscess of Liver: Forty-Eight Cases with Particular Attention to Treatment. S. M. Chen, G. W. van Gorder and Y. K. Yuan.—p. 393.
Endamoeba Histolytica Infection in North China: One Thousand Positive Cases. S. M. Tao.—p. 412.
*Lymphatic Reaction in Experimental Trypanosomiasis. C. H. Hu.—p. 435.
Attempt to Immunize Hamsters Against Kala-Azar. T. J. Kurotchkin.—p. 458.
Filariasis in China with Especial Reference to Its Distribution and Transmission. L. Feng.—p. 464.
Historical Notes on Fasciolopsis Buski (Lankester, 1857) Odhner, 1902. O. K. Khaw.—p. 475.
Bertiella Elongata Bourquin, 1905, and Bertiella Studeri Blanchard, 1891, from Flying Lemurs in Philippine Islands. H. J. Chu.—p. 488.
Larvae and Pupae of North China Species of Anopheles: Their Structure and Breeding Habits. L. C. Feng.—p. 493.
Observations on Incidence of Anopheles in Rural Area Outside Peiping and on Conditions of Anopheles Breeding. C. P. Yang.—p. 513.
Mycologic Study of Tirea of Glabrous Skin. T. J. Kurotchkin and F. K. Chen.—p. 521.
Tinea Favosa in Peiping. F. K. Chen, T. J. Kurotchkin and C. K. Hu.—p. 529.
*Tinea of Nails in Peiping. T. J. Kurotchkin and T. L. Ch'in.—p. 534.
Histologic Reactions in Skin Due to Ectoparasites. R. Hoeppli and L. C. Feng.—p. 541.
*Histologic Changes in Digestive Tract of Vertebrates Due to Parasitic Worms. R. Hoeppli and H. F. Hsü.—p. 557.
Parasitic Nematodes Mostly from Snakes Collected in China. H. F. Hsü and R. Hoeppli.—p. 567.
Action of Esophageal Glands of Parasitic Nematodes. R. Hoeppli and L. C. Feng.—p. 589.
Transmission of Kala-Azar to Hamsters (Cricetulus Griseus) by Feeding Them with Infected Carcasses. O. K. Khaw.—p. 599.
Early Case of Kala-Azar, Possibly Oral Infection in Laboratory. H. L. Chung.—p. 617.
Survey of Peiping Latrines for Intestinal Parasites. O. K. Khaw.—p. 622.
Treatment of Worm Diseases with Chinese Drugs: From the Pen Ts'ao Kang Mu with Notes. B. E. Read.—p. 644.
Extracts from Some Old Chinese Medical Books on Worm Infections. H. J. Chu and I. H. Ch'iang.—p. 655.

Lymphatic Reaction in Trypanosomiasis.—White rats experimentally infected with Trypanosoma brucei were studied histologically by Hu, at different stages of infection. It was found that this infection produces a massive hyperplasia of the reticulo-endothelial system, increased intramedullary and extramedullary erythropoiesis and myelopoiesis and a striking hyperplasia of the lymphoid tissue. There is no evidence, however, to show that one element can be transformed into the other. The lymphatic hyperplasia, which takes place chiefly in the spleen and the lymph nodes, consists of a great increase in number of large and medium sized lymphoblasts which, in the early stage of infection seem to be formed directly from certain small lymphoid cells in the lymphoid tissue of these organs. These lymphoblasts, once formed, may either undergo rapid cell division, forming other lymphoblasts, or become transformed into plasma cells. Although the lymphoblasts of the germinal centers and the rest of the lymphoid tissue participate in this generalized hyperplasia, the large and medium sized lymphocytes and a certain number of the small lymphoid cells do not undergo significant change. Especially striking are the small lymphoid cells of the thymus, all of which remain practically unaltered in the whole course of infection. The failure of these cells to take part in this reaction is interpreted by the assumption that they are true small mature lymphocytes which, with the ordinary histologic methods, are indistinguishable from the small primitive cells capable of forming larger lymphoblasts.

Tinea of Nails.—Kurotchkin and Ch'in report that a study of eighteen cases of onychomycosis revealed two clinical forms of the disease. The most common form was characterized as a rule by considerably thickened and brittle nails which were also either ridged or otherwise deformed. In the second form the nails were smooth and had an abnormally dull white color, characteristic of leukonychia. In the later type of case the fungus was found in abundance in the scrapings from the surface of the nail. Three species of Epidermophyton were isolated from thirteen cases. Cultural examination of the remaining five cases was negative for fungi. Epidermophyton rubrum was present nine times among the thirteen cases. This fungus was also responsible for the infection in the two cases with leukonychia. It was observed that onychomycosis is a secondary infection in the majority of cases. It may develop as a result of the extension of the infection from cutaneous mycotic lesions such as occur in tinea of the feet and hands. It may also accompany tinea cruris, in which case infection of the nails is probably due to self inoculation. This conclusion is based on the fact that in cases of coexisting mycoses the same organism has regularly been isolated both from the nails and from the skin.

Changes in Digestive Tract Due to Parasitic Worms.—Of the various histologic changes in the intestinal tract of vertebrates due to parasitic worms, the following are briefly described by Hoeppli and Hsü: superficial lesions of the mucosa due to mechanical action of organs like suckers, rostellum, and buccal capsule; changes mechanically produced in the glands, and lesions of the deeper layers of the intestinal and stomach wall. The changes of the first group are very similar in principle; an inflammatory reaction and ulcer formation occur usually only in cases in which the parasite anchors in one position for a long time. The mechanically produced changes of the glands consist in a torsion and widening, which vary from a very slight degree (Strongyloides species) to a very high degree (Tetrameres species and Cotylaspis species). Lesions of the deeper layers are represented by nodules of different structure, ulceration which depends for its histologic picture on the development of the esophageal glands, and tunnel formation (Spiroxys japonica).

Paris Médical

2: 345-356 (Oct. 24) 1931

Vernes Resorcinol Reaction in Nontuberculous Diseases. C. Gernez. —p. 345.
pH of the Urine in Various Psychoses. Laignel-Lavastine, R. Cornelius and G. d'Heucqueville.—p. 348.
*Pain Syndrome of Fifth Lumbar Vertebra in Young Women. D. C. Rœderer.—p. 354.

Pain Syndrome of Fifth Lumbar Vertebra.—For several years, Rœderer has been noting a pain syndrome, not accompanied by contracture, which affects the region of the fifth lumbar vertebra in young women at the end of puberty. These young women range in age from 13 to 25 years (the oldest still have the exterior habitus of adolescents). The pain is fixed and constant, never very acute, but annoying by its persistence. Some patients complain simply of inconvenience; there is sometimes a sensation of burning or pricking and almost always a sensation of heaviness. The pains are spontaneous, with periods of eclipse. A prolonged upright or sitting position sometimes brings on the symptoms. The pain does not radiate to the buttock, thigh, groins or organs in the true pelvis. The menses usually aggravate the condition. The evolution of the syndrome is irregular; several weeks of latency are often followed by a reappearance of symptoms without apparent cause. Generally after from twelve to eighteen months the pains disappear either gradually or suddenly. The recovery seems absolute; a follow-up of old cases proved that it is permanent. The syndrome resembles that of painful occult spina bifida of the fifth lumbar vertebra reported by other workers. However, the author's syndrome appears in women only, while the related syndrome occurs in both sexes. Palpation localizes a painful spot in the region of the spinous process of the fifth lumbar and the first sacral vertebra; but the sensitive region is sometimes more extensive and includes the articular processes between the fourth and fifth lumbar vertebrae and even the transverse processes of the sacral vertebrae. However, the spinous process of the fifth lumbar or the first sacral vertebra always responds with the maximum of pain on pressure. The diagnosis of the syndrome is very delicate and is sometimes uncertain for weeks and even months; there is no indication of Pott's disease or sacral osteitis, and the roentgenograms are negative. The therapy is only palliative. The author recommends rest, with local and general sedatives. He believes this syndrome is sufficiently characteristic to be designated as an entity.

Presse Médicale, Paris

39: 1533-1556 (Oct. 21) 1931

*Mean Hypertension During Exertion: Cardiac Function. H. Vaquez, D. M. Gomez and R. J. Lajoie.—p. 1533.
Gastrectomy and Gastro-Enterostomy in Treatment of Ulcer. Bergeret and Caroli.—p. 1535.
Criteria of Healing in Gastric and Duodenal Ulcers. R. A. Gutmann. —p. 1537.
Action of Insulin in Ulcerous Cancers of Skin. S. F. Gomes da Costa. —p. 1541.

Mean Hypertension During Exertion.—Vaquez and his co-workers believe their researches demonstrate that the mean arterial pressure constitutes a true physiologic constant. In a previous paper (*Presse médicale* **39:**1309 [Sept. 5] 1931; abstr. The Journal, November 7, p. 1419), Vaquez and Gomez described the method for the oscillometric determination of the mean blood pressure. Subsequent researches led to the following conclusions: In well compensated cardiac disease the mean pressure is similar to what it is under normal conditions; that is, following exertion there is no change or very slight change in the mean pressure. It is otherwise when cardiac insufficiency is present and the right ventricle is affected. An elevation of the mean pressure is not due to acceleration of the pulse, since there is often acceleration of the pulse in the compensated condition. In dextrocardiac insufficiency, moreover, the elevated mean pressure subsequent to exertion returns but slowly to its former level. In persons with compensated cardiac disease an elevation of the mean arterial pressure following exertion may be a premonitory sign of approaching cardiac failure. The authors believe that a consideration of the extreme pressures is not sufficient. To determine the exact functional capacity of the heart, the mean arterial pressure should be ascertained both in a state of rest and in a state of action.

Annali Italiani di Chirurgia, Naples

10: 1008-1109 (Sept. 30) 1931

Bilobate Stomach: Autoplastic Reconstruction; Recovery. G. Pascale. —p. 1008.
Possibility of Contaminating Gloves and Tissues During Surgical Interventions. L. Torraca and M. Romeo.—p. 1027.
*Mechanism of Action of Hypertonic Solutions of Sodium Chloride. A. G. Chiariello.—p. 1047.
*Injections of Calcium Salts into Tissues Adjacent to Fractures, Under Pathologic Conditions. S. Rollo.—p. 1059.
Uronephrosis and Tuberculous Infection. G. B. Cengiarotti and E. Nalin. —p. 1069.

Action of Hypertonic Solutions of Sodium Chloride.—Chiariello studied the effects of intravenous injections of hypertonic solutions of sodium chloride on dogs in which both ureters were ligated experimentally. He observed that the dogs so treated and doomed to die survived longer than the controls that were not so treated. Such survival amounted, on the average, to 21.8 hours. It is difficult to explain the mechanism of the action, but the author is inclined to assume a direct antitoxic action of the hypertonic solutions.

Injections of Calcium Salts into Tissues Adjacent to Fractures, Under Pathologic Conditions. — Rollo reports that, from his experiments on animals (rabbits and guinea-pigs), it appears that injections of calcium glycerophosphate into the tissues immediately adjacent to a fracture serve to stimulate the focus to greater activity. They cause the early and abundant formation of new connective tissue and favor the ossification of the bone. While the second fact was established by previous experiments on sites of fractures under ordinary physiologic conditions, the first is proved especially in cases of partial diaphyseal resection and the interposition of muscle tissue between the bone fragments, in which (through parvicellular infiltration and the ample formation of new connective tissue) the destruction and replacement of the muscle tissue, and the formation of callus, inducing ossification, were facilitated. In the controls the interposed muscle tissue, preserving its integrity longer, impeded the normal evolution of the callus.

Giornale di Clinica Medica, Parma

12: 1039-1102 (Oct. 10) 1931

*Pulmonary Hyperventilation: Behavior of Lactic Acid in Blood and Alkali Reserve. G. Lucchi and B. Manfredini.—p. 1042.
Effects of Pulmonary Tuberculosis and of Artificial Pneumothorax on Glutathione of Blood. G. Borsalino.—p. 1057.

Pulmonary Hyperventilation; Behavior of Lactic Acid in Blood and Alkali Reserve.—Lucchi and Manfredini, continuing their researches on pulmonary hyperventilation, studied in twenty subjects the behavior of lactic acid of the blood and of the alkali reserve in voluntary hyperpnea. They found a notable and almost constant diminution of the alkali reserve and an increase of the lactic acid, both being more marked the more intense and the more extensive the muscular spasms were. The authors consider that the diminution of the alkali reserve is due partly to an increased elimination of carbon dioxide through the respiratory passages and partly to the hyperlacticemia provoked by the effort of the musculature and, above all, by the muscular spasms.

Policlinico, Rome

38: 477-532 (Oct. 1) 1931. Medical Section

*Experimental and Clinical Data on Prophylactic and Therapeutic Value of Antidiphtheritic Serum. T. Pontano.—p. 477.
Polycystic Kidney. R. Rossoni.—p. 498.
Existence of Endocarditis Due to Bacterium Coli-Commune. G. Borruso. —p. 511.
Tuberculosis of Spleen with Large Caseous Nodes. P. Mariconda.—p. 524.

Prophylactic and Therapeutic Value of Antidiphtheritic Serum.—Pontano studies the diphtheria problem in its three fundamental aspects: experimental, statistical and clinical. Experiments on the guinea-pig have led to wrong interpretations of human diphtheria. The prophylactic and therapeutic experiments with serums on the guinea-pig show only the prophylactic and noncurative value of the serum. The author took up the experiment by infecting the guinea-pig with bacilli and not merely intoxicating it with a toxin. He confirms the prophylactic value against the bacterial infection, both as to local manifestations and as to toxemia. He accords the serum no action on the established disease as regards either the local infection or the toxemia. An unbiased examination of the statistics led him to conclude that the reduction in the mortality from diphtheria is due to other causes than to the use of serotherapy. Clinical evidence in a large number of personal cases does not point to a curative action of the serum. In grave cases the mortality was the highest when the serum was employed. The serum does not have any effect on the local lesions. With serum, the mortality from diphtheria is high when the seat of the disease is laryngeal. In the ordinary cases of the disease the mortality is the same without serum as with serum.

Revista Española de Medicina y Cirugia, Barcelona

14: 507-562 (Oct.) 1931. Partial Index

*Action of Histamine on Hydrogen Ion Concentration and Alkali Reserve. V. González Calvo and J. Martinez Bruna.—p. 508.

Action of Histamine on Hydrogen Ion Concentration and Alkali Reserve.—González Calvo and Martinez Bruna made determinations of the hydrogen ion concentration and the alkali reserve in patients with several pathologic conditions, either during rest or during work, and before and after eating, to ascertain what the modifications of the acid-base equilibrium are under the influence of histamine. One of the patients had diabetes. The work was preceded by determinations of the same nature in rabbits. The dose of histamine given to man was 1 mg. administered subcutaneously. From their observations the authors reach the following conclusions: Histamine has a marked action on the hydrogen ion concentration and on the alkali reserve both of man and of rabbits. Because the mechanism controlling the acid-base equilibrium is better developed in man than in rabbits, thus permitting in the former a partial inhibition of the action of histamine, the changes in the hydrogen ion concentration and in the alkali reserve under the influence of histamine are more marked in rabbits than in man. They are of a transient nature, lasting no longer than an hour and a half, and are manifested in rabbits by the appearance of alkalosis. The processes of digestion, muscular work and the like cause marked changes in the acid-base equilibrium, and these changes are more marked when the determinations of hydrogen ion concentration and alkali reserve are made simultaneously. The action of histamine varies according to the conditions of the given individual, although histamine affects more intensely the hydrogen ion concentration than the alkali reserve. The authors cannot as yet give a conclusive statement on the action of histamine on the acid-base equilibrium of diabetic patients, since the number of observations is not sufficient (only one diabetic patient was observed by them). Further determinations of the same nature in diabetic patients are planned.

Semana Médica, Buenos Aires

38: 1177-1240 (Oct. 15) 1931. Partial Index

*Cancerous Degeneration of Tubuloracemose Gland During Evolution of Chronic Erosive Hypertrophic Cervicitis. E. A. Votta.—p. 1184.
Prolapse of Umbilical Cord Followed by Delivery of Living Child. S. N. Berra.—p. 1193.
*Benign Acute Lymphocytic Meningitis Simulating Tuberculous Meningitis. J. Silberstein.—p. 1194.
Treatment of Cranial Trauma and Its Sequelae. M. Balado.—p. 1204.
Surgical Treatment of Cicatricial Stenosis of Esophagus. G. Suárez Aguirre.—p. 1217.

Cancerous Degeneration of Tubuloracemose Gland of Cervix Uteri.—The most interesting fact in Votta's case is the important information given by the biopsy, done in a patient with chronic erosive hypertrophic cervicitis, by which the presence of a malignant degeneration of a tubuloracemose gland of the cervix uteri was discovered and treated early by exeresis of the cervix, containing the degenerating tissues, and by radium therapy. Clinical symptoms of the presence of a malignant process in evolution had not been previously discovered. The patient is observed at frequent intervals for recurrences, which up to the present have not appeared. The microscopic characteristics of the tumor, a plasmodial epithelioma, are given in detail in illustrations. The neoplastic degeneration of the glandular epithelium in the author's case supports the theory of the common glandular origin of epitheliomas of the cervix uteri.

Lymphocytic Meningitis Simulating Tuberculous Meningitis.—Silberstein states that there is a type of epidemic benign meningitis in which the differential diagnosis from certain diseases or conditions, such as syphilis, epidemic encephalitis, trauma, acute poliomyelitis or some other disturbances, is easy. The disease attacks adults (usually young men). It simulates so closely tuberculous meningitis that a differential diagnosis between these two forms of meningitis is difficult. The cerebrospinal fluid in this type of meningitis contains a large number of lymphocytes. Its sediment is negative for tubercle bacilli and when inoculated into a guinea-pig gives negative results. The disease follows an evolution to spontaneous recovery without leaving any sequelae, an occurrence which is rarely observed in cases of tuberculous meningitis. The author states that the performance of the biologic test and the isolation and cultures of the causal bacteria are necessary to include this new entity of meningitis in the pathology of the nervous diseases.

Deutsches Archiv für Klinische Medizin, Leipzig

171: 431-594 (Sept. 21) 1931

*Normal Size and Form of Heart in Man. F. Moritz.—p. 431.
Increase of Total Amount of Blood in Patients with Cardiac Disease. K. Nordmeyer.—p. 477.
Healing Tendency of Duodenal Ulcer. K. Goette and H. Peters.—p. 486.
*New Treatment of Typhoid Bacillus Carriers. N. Onodera, G. Murakawa and S. Liu.—p. 503.
Studies on Metabolism of Blood Pigment. L. Heilmeyer.—p. 515.
Free and Combined Amino Nitrogen in Deproteinized Blood and Tissue Under Normal and Pathologic Conditions. E. Becher and E. Herrmann. —p. 529.
Idem. E. Becher and E. Herrmann.—p. 547.
Significance of Sternal Puncture in Anemias and Modification of Bone Marrow by Liver Treatment. I. Barta.—p. 565.
Clinical Significance of Deviation of Axis to Left in Electrocardiogram on Basis of After-Examinations. C. Korth and S. H. Proger.—p. 578.

Normal Size and Form of Heart in Man.—In the introduction, Moritz points out that at necropsy the determination of the dimensions of the heart is usually limited to measuring the thickness of the walls, the median length and the basal circumference of the ventricles, and to weighing the heart. In the main part of the article he aims to show what size of the heart can still be considered normal or is already abnormal. He considers as the best method the determination of the correlations of the heart measurements to the other body measurements. The size of the heart is determined by orthodiagraphy. The author reaches the conclusion that, for the determination of the normality of the size of the heart, the body height is the best correlative.

New Treatment of Typhoid Bacillus Carriers.—Since the typhoid bacilli in carriers usually lodge in the biliary tract and since halogen compounds have a bactericidal effect, Onodera and his associates treated seven typhoid bacilli carriers by giving intravenous injections of tetiothalein sodium and after a certain time the region of the gallbladder was irradiated with roentgen rays. Of seven patients who were treated in this manner, three became free from bacilli (bile and feces), two remained free from bacilli for a month following the treatment, and in the other patients, who are still under clinical observation, the treatment was without effect. Considering the ineffectiveness of the other therapeutic measures that have been recommended for bacillus carriers, the authors think that since their method produces favorable results in some cases it justifies further investigation.

Klinische Wochenschrift, Berlin

10: 1977-2024 (Oct. 24) 1931

Metabolism During Bodily Exertion. E. Simonson.—p. 1977.
Clinical Significance of Degenerative State. Berta Aschner.—p. 1981.
Modification of Smallpox Diagnosis According to Paul. W. Jadassohn, H. Schläpfer and L. Braun.—p. 1985.
Examination and Estimation of Ferment Preparations. C. A. Rojahn and J. A. Müller.—p. 1987.
Biochemistry of Hemolytic Icterus. A. Brock and Anna Joffe.—p. 1900.
*Function of Stomach Following Removal of Antrum Pylori. C. J. Johnson.—p. 1991.

Use of Citochol Extracts for Serodiagnosis of Syphilis by Means of Flocculation. H. Sachs and E. Witebsky.—p. 1993.
Milk Hygiene. M. Klimmer.—p. 1994.
*Aspects of Diabetes with Insulin Resistance. F. Serio.—p. 1998.
Action of Corrosive Mercuric Chloride. W. Heubner.—p. 1999.
*Intracutaneous Injection and Basal Metabolism. W. Crecelius.—p. 1999.
Modification of Bactericidal Power of Blood by Mineral Salts. L. K. Wolff.—p. 2000.
Idem. H. G. Scholtz.—p. 2000.
Ketonuria: Test of Partial Function of Liver. H. Staub and P. Clerc. —p. 2001.
Water Metabolism During Valvular Defects. H. Elias and J. Goldstein. —p. 2002.
Glycolability and Its Clinical Manifestation. G. Fanconi.—p. 2002.

Function of Stomach Following Removal of Antrum Pylori.—Johnson performed on dogs resection of the antrum pylori and gastro-enterostomy, and, immediately below, a duodenal fistula was made. It was found that the secretion of such a stomach is reduced, especially if porridge and soups are fed; but even if meat, bread and vegetables are given, the gastric secretion is reduced. If soups and porridge are fed, the stomach retains the food only for a short time, but solid foods are retained much longer. As soon as the food enters the duodenum there takes place, even under these unphysiologic conditions, a complete mixture with the duodenal secretions, and thus the hydrochloric acid is largely neutralized.

Aspects of Diabetes with Insulin Resistance.—Serio states that patients with the form of diabetes which is resistant to insulin usually appear well nourished, have only slight acidosis and are influenceable only slightly by dietetic measures. He then describes the clinical history of such a patient. Since dietary measures as well as insulin therapy failed in their effect and since the patient showed slight symptoms of hyperthyroidism, an antithyroidal preparation was administered in increasing quantities. After forty days of this medication the insulin resistance had completely disappeared, so that 14 units of insulin was now sufficient to reduce the glycemia considerably and even to produce hypoglycemic symptoms. The sugar content of the blood during fasting became normal and could be kept in normal limits in spite of a free diet and of tolerance tests, even after the treatment had been discontinued. The renal elimination of sugar continued. This was probably due to a renal factor, which became evident after the hyperglycemia had disappeared.

Intracutaneous Injection and Basal Metabolism.—Crecelius describes experiments which prove that intracutaneous injection, that is, irritation of the sympathetic nervous system, causes changes in the basal metabolism, whereas if the injection is made subcutaneously or intramuscularly there is no such effect. However, not all persons react in the same manner. To what causes it may be ascribed that in some persons there is an increase in the basal metabolism while in others there is a decrease has not been detected as yet. A careful control of the blood pictures gave no explanation, since a certain uniformity was not detectable.

Medizinische Klinik, Berlin

27: 1445-1482 (Oct. 2) 1931. Partial Index

Etiology and Clinical Aspects of Megaduodenum. V. Schmieden and Kraas.—p. 1445.
Expert Testimony on Diabetes. H. Strauss.—p. 1450.
*Membranous Colitis a Disappearing Disease. I. Boas.—p. 1451.
*Apple Diet and Intestinal Flora. W. Schreiber.—p. 1452.
Action of Insulin on Gastric Function and Its Diagnostic and Therapeutic Significance. H. Heller.—p. 1454.
Investigations on Liver Function in Chronic Stage of Epidemic Encephalitis. L. Hess and J. Goldstein.—p. 1461.
Free Organ Transplantation in Animal Experiments. W. Reiprich.—p. 1461.

Membranous Colitis a Disappearing Disease.—Boas points out that membranous colitis, which thirty years ago was one of the most discussed intestinal disorders, in recent years has hardly been mentioned, and he is convinced that the reason for this is the decreased frequency of the disease. In the last decades of the last century, when the incidence of membranous colitis was greatest, the various forms of colitis were usually treated by medicated and especially by astringent enemas. Modern medicine has done away with the habitual enema treatment and particularly with the medicated and astringent enemas, and the author thinks that membranous colitis has decreased in the same ratio as the use of enemas. Another reason why he considers enemas and especially medicated ones as the etiologic factor of membranous colitis is that in the rare cases of membranous colitis which came under his observation in recent years the anamnesis always revealed the habitual use of enemas. When the enemas were discontinued and a dietary treatment was introduced instead, the patients no longer complained of the discharge of membranes. On the basis of past experiences, the author concludes that the cause of the membrane formation is a simple colitis, for the treatment of which unreasonable methods, such as enemas, were prescribed. In this manner a simple mucous colitis developed into a membranous colitis. Since colitis is no longer treated in this manner, and since likewise the use of cathartics has diminished, membranous colitis has almost disappeared.

Apple Diet and Intestinal Flora.—Schreiber shows that in acute and catarrhal intestinal diseases, such as Flexner's dysentery, paratyphoid B and the common dyspepsias, an apple diet causes a change in the intestinal flora, which manifests itself in a considerable increase in the coli bacteria and in a decrease in the pathogenic intestinal flora. At the same time, the clinical manifestations disappear. The virulence of the coli strains neither increases nor changes as the result of the treatment, so that a predisposition for the disease may persist in spite of the clinical cure.

Münchener medizinische Wochenschrift, Munich

78: 1731-1772 (Oct. 9) 1931

Treatment of Chronic Diarrhea. P. Morawitz.—p. 1731.
Investigations on Hypotensive Remedies. J. Eversmann.—p. 1734.
Pathogenesis, Prophylaxis and Therapy of Thrombosis and Thrombophlebitis. Eichenlaub.—p. 1737.
*Intramuscular Calcium Therapy (Calcium Gluconate) in Pulmonary Tuberculosis. E. Undritz.—p. 1741.
Present Status of Cancer Research. Borst.—p. 1745.
Recognition of Poisoning on Corpses. K. Meixner.—p. 1750.
Supplementary Catheter for Trocar Especially in Ascites. S. Munter. —p. 1753.
Proposition for Effective Treatment of Recent Urethral Gonorrhea in Women and for Prevention of Ascending Gonorrhea. A. Sack and R. Amersbach.—p. 1753.
*Pathogenesis and Therapy of Leukorrhea. E. Pulay.—p. 1755.
How Much Latin and Greek the Medical Student Should Know. S. Schwarz.—p. 1755.
Observations on Nicotine Abstinence. H. Czickeli.—p. 1756.

Intramuscular Calcium Therapy in Pulmonary Tuberculosis.—Undritz employed intramuscular injections of calcium gluconate in sixty patients with tuberculosis. The injections are given every other day, alternating into the right and left gluteal muscles. In some cases the injections can be interrupted for some time, and later another series may be given. Intravenous injections of calcium gluconate are advisable in cases of hemorrhage, and a prolonged intramuscular administration may be followed by a series of intravenous injections. The author gives a tabular report, showing the results of the treatment in sixty cases, and a detailed report of three cases. He concludes that intramuscular calcium therapy is advisable in all forms of pulmonary tuberculosis, but in patients with high temperature and poor general condition the injections of calcium gluconate should be postponed until the active manifestations have somewhat subsided and the general condition has been improved by camphor therapy. Especially suitable for parenteral calcium therapy are patients with pleural exudation, and also patients who receive pneumothorax treatment, for in these cases the inhibiting action of calcium on the exudation is of especial value. A prophylactic administration of calcium is advisable from one to two weeks before the pneumothorax is induced. In the summary the author stresses that the calcium administration cannot be considered as a causal therapy and that not all patients are benefited by it. However, he considers it a valuable adjuvant. Its efficacy is due to transmineralization of the organism; that is, it does not form calcium deposits, but, in passing through the organism, it displays pharmacodynamic actions, such as increasing the phagocytosis and checking the inflammation and exudation.

Pathogenesis and Therapy of Leukorrhea.—Pulay's observations indicate that leukorrhea is a manifestation of avitaminosis. Clinically considered, leukorrhea belongs to the group of seborrheal eczema, urticaria, chronic rhinitis and hay fever. In many cases of leukorrhea the anamnesis reveals that disorders of the skin existed in earlier years. Since it is possible to counteract seborrheal eczemas in children by administration of vitamin A, the author tried vitamin treatment in cases of leukorrhea. In some of the cases, administration of vitamins A and D effected a rapid improvement, but other cases were at first refractory. In the majority of the cases belonging to the latter group, severe seborrhea existed. Soon after a protein-free diet was instituted, these cases yielded to vitamin therapy. In order to determine the correlation between these factors, the author studied the blood chemistry of these patients and detected a reduced alkali reserve, acidosis and low magnesium content. In patients in whom the cholesterol content was normal or somewhat reduced, the vitamin treatment became rapidly effective; however, in the patients with severe seborrhea, in whom vitamin therapy was at first ineffective, the cholesterol content of the blood was considerably increased. Only after the cholesteremia had been counteracted by the proper dietary treatment did the vitamins become effective. These observations indicate the significance of the metabolic conditions in the pathogenesis of leukorrhea and show that the leukorrhea problem is largely dietary.

Wiener klinische Wochenschrift, Vienna

44: 1297-1328 (Oct. 16) 1931

Cerebral Attacks and Angiospasm in Persons with Hypertension. J. Pal. —p. 1297.
*Unnoticed Biologic Law and Its Significance for Research and Practice. J. Wilder.—p. 1299.
Ascending Thrombosis of Vena Cava Inferior. H. Dibold.—p. 1304.
Antipyrine Abuse for Sixteen Years: Case. W. Raab.—p. 1306.
Late Tetanus from Blunt Trauma More Than Fourteen Years After War Injury. W. Ernst.—p. 1308.
Disturbances in Anesthesia. E. Garzo.—p. 1310.
Carcinoma of Uterus with Especial Consideration of Early Diagnosis. P. Werner.—p. 1312.
Tumors of Jaws with Especial Consideration of Early Diagnosis. H. Pichler.—p. 1315.
Diagnosis of Acute Coronary Occlusion and Conditions for Which It Might Be Mistaken. D. Scherf.—p. 1318.
After-Treatment Following Operations on Hemorrhoids and on Varicose Veins. M. Jerusalem.—p. 1319.

Unnoticed Biologic Law and Its Significance for Research and Practice.—Wilder describes the results of his clinical experimental researches on the autonomic nervous system. He investigated the Eppinger-Hess theory of vagotony. The usual doses of atropine, epinephrine and pilocarpine were administered subcutaneously, and especial attention was given to the pulse rate and the blood pressure. On the basis of his observations he concludes that it is incorrect to assert that in the individual the usual manner of testing reveals a characteristic reaction to atropine, epinephrine and pilocarpine. There are differences in the quality and even in the types (vagotonic and sympathicotonic) of the reactions in the same person. In all types of experiments it was found that in about 75 per cent of the cases the difference in the outcome of the tests concurred with a difference in the initial values of pulse rate and blood pressure. It was observed that the higher the initial values the less the tendency to increase but the greater the tendency to decrease. If the initial value is high, the increase is slight but the decrease is marked; on the other hand, if the initial value is low the increase is great, while the falling off is slight. This is the biologic law to which the author has reference, and he terms it the law of the initial value (ausgangswertgesetz). The already existing state of irritation influences the irritability; that is, the higher the existing irritation or degree of activity, the lesser the responsiveness to increasing influences and the greater to inhibiting influences. In the second part of the article the author discusses the practical significance of this law. It explains many apparent contradictions; for instance, that the same person may react differently to the same dose of the same pharmaceutic preparation, or that the pulse rate reacts differently from the blood pressure, or that the reaction does not correspond to the dose. Knowledge of this law is also important for therapeutic measures, especially in spheres in which the vagosympathetic antagonism is involved. The author discusses the basal, sugar and calcium metabolism; also diuresis, temperature, iodine and the thyroid, the pharmacodynamic actions of cardiac remedies, the reactions of the pupils, the uterus, the stomach and the mechanism of perspiration.

Zentralblatt für Gynäkologie, Leipzig

55: 2985-3040 (Oct. 10) 1931

Biologic Action of Rays of Various Wavelengths. H. Küstner.—p. 2986.
Prevention of Conception and Moral Law. M. Hirsch.—p. 2992.
Unsuccessful Attempt at Hormonal Sterilization in a Man. M. Rodecurt. —p. 3004.
*Hormonal Sterilization of Female Mammals. A. Mandelstamm and W. K. Tschaikowsky.—p. 3004.
Bilateral Primary Carcinoma of Uterine Tubes. G. Haselhorst.—p. 3008.
*Psychic Influence on Female Genitalia. W. J. Zempléni.—p. 3012.
Therapy of Pruritus Vulvae. G. Siefart.—p. 3014.

Hormonal Sterilization of Female Mammals.—Mandelstamm and Tschaikowsky report that injections of 10 mouse units of prolan B (hormone of the anterior lobe of the hypophysis effecting luteinization) and even as much as 50 units are tolerated by white mice, without injurious effects. A single injection of prolan B produces temporary sterility in a large number of the animals. Of seventy-three mice, only eleven became pregnant during three estrual cycles. In mice that had been sterilized by hormonal treatment, a single injection of prolan prevented ovulation during five or six estrual cycles, and in some the sterility even lasted fifteen cycles. A repeated injection of 10 mouse units of prolan B effected sterility in all the examined animals (observation time of six mouse cycles). The authors conclude that injection of prolan B may prove to be helpful in inducing temporary sterilization of the female organism.

Psychic Influence on Female Genitalia.—In the introduction to his paper, Zempléni points out that the influence of the functional phases of the female genitalia (menarche, menstruation, pregnancy, labor, puerperium, lactation and menopause) on the psyche is generally recognized, for, in connection with those phases, serious psychic reactions and even psychoses have been observed. However, the influence of psychic factors on the genital functions is not so frequently recognized, yet two cases described by the author show that this is possible. In one case, premature menstruation set in as the result of apprehensiveness before a ball and thereafter always set in prematurely under the same conditions. The second case reported by the author concerns a woman who had an abortion as a result of a severe influenza during the tenth week of her first pregnancy. Because she had been told by her friends that all subsequent pregnancies would terminate during the tenth week, her apprehensiveness during the two following pregnancies actually had this effect, although there was apparently no cause for an abortion. During the next pregnancy her physician at first denied that she was pregnant and later this pregnancy was carried to term. The author also cites other conditions, such as war amenorrhea, which are probably due to psychic factors.

55: 3041-3104 (Oct. 17) 1931

*Reaction of Nongravid Human Uterus to Extracts of Posterior Lobe of Hypophysis. G. K. F. Schultze.—p. 3042.
Fetal Heart Sounds and Uterine Sounds on Phonograph Records. W. Rech and H. G. Clamann.—p. 3052.
Leukemia and Pregnancy. J. Saidl.—p. 3053.
Ligation of Veins in Puerperal Pyemia. A. Springer.—p. 3063.
Detrimental Results of Paragraph 218 Regarding Interruption of Pregnancy. M. Rodecurt.—p. 3069.
Influence of Physical Exercises on Female Organism During First Days of Puerperium. M. Merenitschewskaja.—p. 3071.

Reaction of Nongravid Human Uterus to Extracts of Posterior Lobe of Hypophysis.—Contrast roentgenoscopy of the uterus for diagnostic purposes gave Schultze the opportunity to make observations on its motor functions. However, he is convinced that the roentgenogram alone does not permit definite conclusions and that quantitative estimates should be based on the pressure registrations. If the reaction of the uterus following injection of extract from the posterior pituitary is determined by means of pressure registration, it is found that it corresponds to the menstrual cycle. At the beginning of the menstrual cycle the uterus reacts not at all or only slightly to the injection of extract of the posterior lobe of the hypophysis. About fourteen days after the menstruation, the contractions become stronger and of longer duration, and beginning with the twentieth day until twenty-four hours before menstruation sets in again the reaction capacity is very strong. Besides these observations on the dependence of the uterine reactivity on the ovarian cycle, the author made yet other observations on the course of the reaction. He found that in case of intravenous application the action of the extracts sets in half a minute after completion of the injection. First there is a pressure decrease, which in turn is followed by a marked increase. The intensity of the reaction is likewise dependent on the dose. In estimations of the uterine contractions it is also significant to consider other factors that are of influence. There are "spontaneous" contractions caused by the contrast medium. The woman's excitement during the injection also causes strong contractions, and only after these have passed should the influence of the extract be estimated. The discharge of some of the contrast material and whether the tubes are open or closed is also of influence on the contractions. If large doses of the extract are injected there are certain unpleasant general reactions, such as a feeling of anxiety, severe headache, extreme paleness, enlargement of the pupils and retardation of the pulse. If small doses are given, the general reactions are slight.

Polska Gazeta Lekarska, Lwów

10: 829-844 (Oct. 25) 1931

The Three Internists of Krakow at Close of Nineteenth Century. L. Wachholtz.—p. 829.
*Function of Ovaries After Hysterectomy: Report on Animal Experimentation. K. Bochenski.—p. 832.
*Lymphadenoma and Amyloid Degeneration. J. Kostrzewski and Ciechanowski.—p. 834.
Relation Between Pituitary Body and Female Genital Organs. Seidler.—p. 838.

Function of Ovaries After Hysterectomy.—Bochenski divides the clinical symptoms ascribed to hysterectomy into two groups: those resulting from loss of the organ and those attending retrogressive degeneration of the ovaries. The first group embodies all local symptoms due to anatomic changes in the pelvis, plus removal of the internal secretion of the uterus; the occurrence of an internal secretion in the uterus is not, however, a generally accepted theory. Nine rabbits in which the uterus was removed and oophorectomy was performed six to twelve months later, did not show any macroscopic or microscopic changes in the ovaries as compared with control animals. The symptoms frequently encountered in women, and ascribed to hysterectomy, may be due to preexisting pathologic changes in the ovaries.

Lymphadenoma and Amyloid Degeneration (Hodgkin's Disease).—Kostrzewski and Ciechanowski discuss in detail this rare combination, of which only three cases are on record, two reported by Lichtwitz and one by Matthes. The case under discussion is of particular interest because of insignificant pseudoleukemic changes, general advanced amyloid degeneration and rare possibility of premortal diagnosis. The authors state that (1) the complication of lymphadenoma by amyloid degeneration is proved beyond doubt by this case; (2) there is no relation between the location or extent of the two diseases; (3) the presence of amyloid degeneration does not throw any light on the etiology of pseudoleukemia, and (4) the complication of lymphadenoma by amyloid changes proves that Hodgkin's disease is not a local disorder of the glandular system but a systemic disease with glandular symptoms.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 5191-5260 (Oct. 17) 1931

Idiosyncrasy Toward Cow's Milk. E. Gorter.—p. 5192.
*Transient Benign Coxitis. A. Colaco Belmonte.—p. 5197.
Plague Problem for Europe. J. J. Van Loghem.—p. 5200.
A Special Method for Making Roentgenograms of Cranium and Spinal Column. B. G. Ziedsess des Plantes.—p. 5218.
Hypoplasia Mandibulae with Attacks of Oppression. A. v. Westrienen and T. Jagerink.—p. 5223.
Atrophodermia Vermicularis. H. v. Voornveld-Craciunescu.—p. 5226.

Transient Benign Coxitis.—Belmonte calls attention to a transient, benign infection of the hip joint, apparently little known in the Netherlands but frequently described in foreign journals. Coxitis fugax occurs chiefly in children and sometimes presents peculiarities that make early diagnosis possible. This is especially important for differentiation from tuberculous coxitis with a serious prognosis. Special treatment is not necessary. With rest in bed, the subjective and objective symptoms disappear after a few days or, at the most, a few weeks. The course is entirely favorable. A similar disorder occurs in the knee joint and there appears to be a similar spondylitis.

Bibliotek for Læger, Copenhagen

123: 381-436 (Sept.) 1931

*Cytologic and Metabolic Investigations on Excised Human Thyroids. M. Krogh, A. L. Lindberg and H. Okkels.—p. 381.
Occurrence of Diastase in Blood and Urine of Patients with Acute Infectious Diseases. Cont'd. K. Germer.—p. 405.

Investigations on Excised Human Thyroids.—Krogh and his associates find that cytologic examinations show exophthalmic goiter, unlike simple goiter, to be characterized by cellular hyperactivity, collapse of storage secretion, and proliferation. In patients treated preoperatively with iodine, the storage secretion is frequently restored but the morphologic signs of cellular hyperfunction, particularly the hypertrophy of the Golgi apparatus, are unchanged. The administration in adult male guinea-pigs of dried glands from simple goiters and from successfully treated exophthalmic goiters, in doses based on their iodine content, led to an increase in metabolism nearly equivalent to that caused by the administration of normal guinea-pig thyroids; glands from nontreated exophthalmic goiters and from unsuccessfully treated ones showed a biologic activity definitely below normal.

Svenska Läkaresällskapets Handlingar, Stockholm

57: 237-364, 1931

Some Points of View on Treatment, Especially Institutional Treatment of Neuroses. G. Kahlmeter.—p. 237.
Psychoanalysis and Natural Science. T. Lindner.—p. 246.
*Some Less Common Forms of Torsion of Adnexa. H. Marcus.—p. 249.
"Extra Dextrose" Eliminated After Intravenous and Oral Administration of Glycine to Phlorhizinized Dogs. F. Nord.—p. 274.
Effective Method of Hypnosis. G. Odencrantz.—p. 282.
*Spasmodic Torticollis and Operative Treatment. H. Olivecrona.—p. 284.
Importance of Making Certain Diagnosis in More Prolonged Mental Disorders Together with Danger of Private Care of Mental Disease Without Competent Medical Attention. A. Petrén.—p. 290.
Some Experiences with Active Psychotherapy. C. V. Söderlund.—p. 325.
Some Remarks on Muscular Sense. A. Tamm.—p. 327.
*Genuine and Postencephalitic Narcolepsy: Clinical Investigation. S. Wohlfahrt.—p. 342.
*Scorbutic Ménière's Symptom and Otosclerosis. H. Öhnell.—p. 358.

Some Less Common Forms of Torsion of Adnexa.—Marcus describes three cases of torsion of normal uterine appendages. In the first, in the third month of pregnancy, removal of the twisted adnexa did not affect the pregnancy, and normal delivery occurred at term. Excision was also done in the second case, and in the third the twisted adnexa were untwisted. Analogous cases from the literature are cited. The prognosis was good in all cases.

Spasmodic Torticollis and Operative Treatment.—Olivecrona reports six cases in which operative treatment resulted in marked improvement or in complete recovery. He states that recurrences are seldom to be feared and that, in cases of incomplete recovery, further improvement may be expected during the following years, probably because of the tendency of the condition to spontaneous recovery. He emphasizes that surgical division of the intraspinal portion of the accessory nerve should not be considered sufficient but that peripheral exeresis of the accessory nerve should as a rule be done. He advises against waiting for spontaneous recovery, as it usually takes years before the condition becomes somewhat endurable. When internal treatment, psychotherapy and so on are ineffective after six months, operative treatment is advocated. If, however, torticollis is only a partial phenomenon of some extrapyramidal syndrome, operative treatment is considered only in exceptional cases.

Genuine and Postencephalitic Narcolepsy.—Wohlfahrt reports four cases of true narcolepsy, all in younger men, two cases showing definite signs of disturbances of internal secretion closely resembling hypothyreosis. The administration of thyroid resulted in improvement. In three other cases reported, the symptoms are apparently related to a previous epidemic encephalitis.

Scorbutic Ménière's Symptom and Otosclerosis.—In Öhnell's case of Ménière's symptom in a patient with latent scurvy, the abundant administration of vitamin C resulted in marked improvement. The definite improvement in four other patients with Ménière's symptom after vitamin C had been given is believed to support the assumption that Ménière's symptom is in certain cases due to scurvy.

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SALT-RESTRICTED DIETARY

WITH PARTICULAR APPLICATION TO TUBERCULOSIS THERAPY *

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Attention at the moment is being redirected to nutritional therapy, especially for cutaneous diseases, disturbances of the sympathetic, and advanced tuberculosis.

EXPERIMENTAL

The general question of curative diet for disease is, of course, an old one. To mention a single experiment, zomotherapy (raw meat and meat juices) was once strongly advised for tuberculosis; but the results showed so little uniformity that no clear deductions could be drawn. In recent years, experimental and clinical attempts have been made for the direct purpose of altering the organism's blood and tissue reactions by means of food. The difficulties involved in any such experiment are easily understood when one recalls how tenaciously the organism retains its blood and tissue reactions, and how stubbornly the regulatory mechanisms of the body prevent displacement of the acid-base equilibrium to one side or the other.

Among recent experiments in this field have been those of Harvey and Howe, who reported from their study of white rats that the complete ration unusually rich in protein favored a more rapid rate of growth of fibroblasts in a healing wound than did a diet with the usual concentration of protein. They made a simple incision in the stomach wall; at later intervals they tested the strength of the wound by inflating the stomach and using the pressure at which the wound broke as an index of the rate of healing, which is proportional to the rate of growth of the fibroblasts. In the first four days after the initial incision, no influence of the high protein diet was manifest, but from the fifth to the tenth day there was a decided advance in the rate of healing in the group given the protein-rich food.

Nutrition is stated to affect coagulability of blood in such a manner as to cause persons to bleed or the blood to clot more readily. Kugelmass and Samuel[1] found that prolonged feeding of a diet containing protein increased the coagulability of blood, maintaining the clotting factors at a high level. Injury of the tissues by surgical intervention induced an overproduction of blood fibrinogen and hence an increased coagulability of the blood. "The introduction of heterologous protein into the vascular system increases the blood-clotting function transiently, with a rapid return to normal."

Experiments have been made also with alkaline and acid ash diets. Schade and others reported a definite influence on the blood reaction from the persistent administration of basic or acid diet with the addition of corresponding salts. An attempt to reduce the blood buffers by a concentration of acid in wounds was made by Hermannsdorfer.[2] He discovered that acid-ash food produced a marked decrease of secretion; the wound shrank, flabby granulations became cornified, and fresh red coatings were quickly cleared away. Briefly, the wound dried up and had better circulation. An opposite effect was noticed after an alkaline-ash diet; the entire wound developed a smeary appearance, often accompanied with the formation of pseudomembranes and fresh epithelial desquamation, and the entire region of the wound showed increased and often edematous swellings. Within the wound the granulations were glassy and the secretions increased, with offensive smell. Parallel with the increased moisture in the wound there were noticeable pathologic changes: With the acid diet, the drying wound gradually lost some of its germs; Bacillus pyocyaneus, Bacillus proteus and other bacilli decreased; streptococci and staphylococci changed in quantity but remained the most persistent. On the other hand, the moist wound resulting from alkaline food was swamped with germs; Bacillus proteus, anaerobes, streptococci and staphylococci all grew abundantly, and there were cases of wound diphtheria. In this connection it is valuable to recall that, during the World War troops from countries with more acid nutrition in the regular diet avoided the epidemics of wound diphtheria which were common among troops with vegetarian food.[3]

Hermannsdorfer further noted that superficial wounds in guinea-pigs fed on oats and phosphoric acid showed marked tendency to granulation, contraction and healing, while those fed on sodium bicarbonate and green vegetables presented torpid wounds and little inclination to healing.

Sauerbruch holds that shifting of tissue reaction to the acid side induces leukocytosis and improved phagocytosis, and changes dissociation of calcium and potassium ions. Spiro[4] showed that calcium caused increased acidity and noticeable depletion of water content of tissues. Dubois and Stolte[5] showed that vegetable diet, rich in potassium, increased retention of calcium.

Bogert and Kirkpatrick demonstrated that acid-forming foods increased while base-forming foods retarded calcium absorption and retention.

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* Read before the Association of New York Physicians, Feb. 26, 1931.

[1] Kugelmass, I. N., and Samuel, Emma Louise: Dietary Protein and Blood-Clotting Function, Am. J. Dis. Child. **41:** 48 (Jan.) 1931.

[2] Hermannsdorfer, A.: Med. Klin., 1929, number 25.

[3] Straub and Meyer, cited by Hermannsdorfer (footnote 2).

[4] Spiro, K.: Monatschr. f. Kinderh. **25:** 609 (March) 1923.

[5] Dubois, M., and Stolte, K.: Jahrb. f. Kinderh. **77:** 27, 1913.

Variations in the acid-base value of diet have been shown by many [6] to influence the absorption and excretion of calcium and phosphorus in rickets and tetany. Acid-forming diets lacking in vitamin D produced rickets in young white rats; base-forming diets under similar conditions produced a very mild degree of rickets; the former shifted the acid-base mechanism of young rats to the acid side, and base-forming diets to the basic side of equilibrium. "Acid-forming diets inhibit and base-forming diets accelerate the rate of growth, metabolism and activity."

In direct opposition to Hermannsdorfer's "acidifying" diet, others have advised, in cases of hypertension, that an alkaline ash diet be stressed and that fruit be increased to replace cereals and meats. With such varying opinions, it is difficult at present to be dogmatic on these points, when proof is so clearly lacking.

DIETARY COMPONENTS

Let us consider the knowledge of the separate constituents of a diet, taking first the question of carbohydrates. Eskimos in their cold climates have been known to thrive on the low total sugar intake of no more than 30 Gm. a day without exhibiting any unusual tendency to arteriosclerosis or kidney disease. The minimum amount of sugar that a person may take and still retain perfect health has not been ascertained, but it is known that, to effect any appreciable metabolic change in the ordinary patient, an increase of at least 20 Gm. over the accustomed amount is necessary.

Proteins.—Definite advice concerning proteins is difficult to give. It would seem that a high protein ration in a great many instances can be carried very well, and for nephrosis, or for convalescents or growing children, 120 Gm. a day or even more may be indicated. In the treatment of disease the exact amounts are hard to fix; perhaps 120 Gm. a day would be an advisable maximum, and 50 a good minimum. In certain cases, such as nephritis, the amount is sometimes cut below this minimum, especially in nitrogen retention cases this may be wise, but ordinarily if such a low amount is supplied in the diet the patient will draw from his bodily resources any additional amount needed.

Fats.—The regulation of fats goes beyond the ordinary diet, for no minor changes in diet-fat will affect metabolism. Dubois relates that he has made sudden changes of 200 Gm. in fat intake without finding any evidence of change in metabolism. It is well known that the human body can hold in reserve large amounts of fat and draw on them at will.

Weigert [7] found that animals overfed on fat showed an increased resistance to tuberculous infection in contrast to the lessened resistance manifested by animals fed chiefly on carbohydrates. Vogt [8] believed that he corroborated this in children. McCann [9] found that for one unit of heat produced from dextrose there is nearly 30 per cent more carbon dioxide than that gotten from the same energy production from fat; so he advises a diet composed largely of fats up to the limits of digestive capacity as one that will produce the least demand on the function of the damaged lungs.

Calcium.—Through the use of parathyroid extract and viosterol, changes in calcium can be effected, but as yet clinical experiments with these have yielded clarifying results only in the treatment of such definite diseases of calcium metabolism as rickets and tetany and osteomalacia. In tuberculosis the calcium metabolism remains yet to be thoroughly investigated; for the proof of a deficiency of serum calcium and tissue calcium in this disease has not yet been established. Experiments on animals have been made to throw light on this point, and in some cases of tuberculosis the serum calcium has been found to be low, but only in the final stages of the disease. We are equally uninformed about the final effects of calcium ionization. But these experiments with animals have yielded certain positive knowledge: it was found that in calcium-normal blood the amount of calcium is not noticeably increased by an addition of calcium to the diet; and in tuberculous organs the amount of calcium in the food did not determine the calcification; furthermore, the calcification did not seem to have any changes which could be brought into ratio with the tuberculous changes.

Sodium Chloride.—In the past, opinions about mineral salts in a patient's diet have been very contradictory. Reduction in the amount of table salt was once strongly advised to reduce edema of the heart and kidney disease, but recently calcium chloride has been advantageously substituted, especially when it has been combined with mersalyl (salyrgan). In cases of hypertension and edema, the sodium and chloride ions of sodium chloride have alternately been considered the chief contributing causes.

Salts can be deposited in the skin, especially in sodium chloride overfeeding. Keining and Hopf [10] found that certain patients, who were first kept for several days on a salt-free diet and then flooded daily with 20 Gm. of sodium chloride in four doses of 5 Gm. each, showed increased urticaria and eczema, almost without exception. This treatment frequently gave the patients severe shock, so that the salt had to be promptly discontinued. The itching became unbearable. Furthermore, in some of the cases, isotonic salt solution produced wheals at the site of injection. An osmotically equilibrated dextrose solution did not cause any wheals in the same cases. A study of the components of sodium chloride responsible for the irritation showed that the anions were not concerned. The sodium was proved to be responsible for the irritation, so that a cation action was involved. Antagonistic cations, potassium, calcium, magnesium and strontium, administered simultaneously overcame the action of producing wheals. It is known chemically that these cations often act favorably on diverse skin disorders. The cations must stand in perfectly definite quantitative relationship to overcome the irritation or to lessen it, and the relative proportion of the constituents of the salt mixture corresponds closely to the cation relationship of the blood plasma.

Functional disturbances have been observed to follow large subcutaneous or intravenous injections of sodium chloride. Instances are those of increased metabolism with simultaneously diminished respiratory quotient, salt glycosuria and so-called salt fever. Some workers report that the addition of suitable amounts of calcium detoxicates the sodium sufficiently to prevent sodium chloride fever. Also surviving organs as nerve and muscle preparations have been injured and have shown considerable changed irritability in pure isotonic sodium chloride which was removable by adding antagonistic cations. Single celled organisms have been severely injured and their development disturbed in pure sodium solutions, but they found optimal conditions only with definite cation proportions.

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[6] A review of some of the literature may be found in the article by Kugelmass and Samuel (footnote 1).

[7] Weigert, R.: Berl. klin. Wchnschr. **38**, 1907.

[8] Vogt, H.: Therap. Monatsh. **26**: 566, 1912.

[9] McCann, W. S.: Am. Rev. Tuberc. **5**: 870 (Jan.) 1922.

[10] Keining, E., and Hopf, G.: Deutsche med. Wchnschr. **57**: 181 (Jan. 30) 1931.

Meyerowitsch,[11] in a study of sodium chloride metabolism in tuberculosis, found salt retention with rising temperature, exudation and edema, but increased salt excretion with fever remission.

Von Bunge[12] believes that sodium chloride inanition can be produced by a vegetable diet and that the normal sodium chloride balance can be maintained in the average person on 2 Gm. of table salt a day. In cases of restricted sodium chloride intake, the normal osmotic pressure is preserved by decreased renal excretion of salt.

Man alone takes salt as a denatured and artificial product as a daily constituent of his food, but severe health injuries do not occur, as the body possesses mechanisms which are capable of detoxicating it to some extent. It is assumed that this is done by the antagonistic cations of the body.

Excess sodium has especially been alleged to cause liquefaction of colloids, as on the surface of all body cells, all these cells being bathed by the fluid which is disturbed in its cations. Such changes in the physiologic conditions at the cell membranes simultaneously alter the response of the cells to stimuli and disturb the conduction of stimuli. All stimuli that reach the cells depend on the chemical colloidal conditions at their surfaces and hence, in the first place, on the relationships of the cations which surround the cells.

The salt relations in the inside of the cell come in contact with the relations in the body fluids at the cell membranes. Conduction disturbances are said to be most marked at the insertions of the sympathetic nervous system, this being the most delicate indicator for all electrolyte displacements. If an abnormal cation relationship surrounding the cells carries abnormal stimuli conduction, a sympathetic disturbance is involved.

As salt-poor nutrition restores the body's normal cation relationship, it is to be expected that there is simultaneous restoration of the normal sympathetic cell functions.

The attempts to increase artificially disease symptoms that represent a disturbance of the sympathetic are considered to show the dependence of the degree of irritability on the normal salt relationship, and, after prolonged use of salt-free nutrition, chemical analysis can show that not only do the abnormal cation values disappear but the symptoms also.

So the indications for salt-poor diet are the manifold sympathetic disturbances and not specifically tuberculosis. Sympathetic disturbances are the result and not the cause of abnormal cation relationships. These can be conditioned by alimentation.

There are only small amounts of antagonistic cations to sodium in the blood. Serum contains almost the maximum of sodium and furnishes only small amounts of antagonists, but the salts of the cell interiors furnish the antagonists; namely, potassium, calcium and magnesium.

The condition of the colloids and therefore also of the cation mechanism determines greatly the activity of vitamins. Vitamin action is intimately related to electrophysical processes, so that some workers practically identify vitamin action and surface tension. In the case of physiologic salt relations the surface tension conditions in the body's colloidal system are the most favorable, and so the conditions for the assimilation of vitamins are optimal.[10]

Calories.—There is not much more certainty possible when one considers a diet from its caloric or vitamin standpoint. In the question of calories, the bodily activity of the individual patient must determine to some extent the caloric values of the advised diet. One must, of course, first arrange for the patient's basic metabolism; then the calories may be increased to take care of bodily activity; but where one person will require for this a doubling of caloric value, another will need only an increase of, let us say, 25 per cent. The additional amount needed for the dynamic action of his food will usually be under 10 per cent. If the normal caloric intake has been high, the amount needed to induce any change will be correspondingly large. Dubois says that a patient receiving 2,000 calories would probably not react to any increase smaller than 200.

Vitamins.—In the question of vitamins, it is still to be satisfactorily demonstrated that any large increase over the usual amount is advisable, even for persons in good health. If it is certain that a definite lack of vitamins exists, it is obvious that they must be supplied, but, as a matter of fact, clear adult cases of a deficiency of vitamins are not common. From his wide experience in New York, Dubois asserts that only rarely does he encounter such diseases as adult scurvy and osteomalacia. Symptoms of pellagra occurred occasionally, but they were usually found in chronic alcoholic addicts who lived on doughnuts and coffee. It is yet questioned whether pellagra may not be evidence equally well of a deficiency in iron and of a lack of vitamin G. Dubois has not seen xerophthalmia or beriberi in his New York clinics.

But caries and defective growth of the teeth have been attributed to a lack of vitamins, and an increase in vitamins C and D has been prescribed for its prevention and healing as well as of vitamin A for building up general resistance to infection. Also, McCarrison's experiments in the production of gastric ulcers under diets deficient in vitamins B and C are well known. It is even possible that diets rich in vitamins A, C and D may help to forestall or heal secondary ulcerative tuberculosis of the intestine. It is certainly difficult to fear any great harm from an excess of vitamins (or the usually attendant increase in mineral salts), except in the extreme excesses that have produced hypercalcemia in experimental rickets. However, an abnormal increase of one vitamin over the others may disturb the vitamin balance and be detrimental. Also, large amounts of raw food taken to increase the vitamin value may offset their efficacy by producing bad effects from their indigestible residues. For cooked food, it must be remembered that the vitamin content is affected by the incidental processes of preparation; vegetables cooked in open containers lose many of their vitamins; canned vegetables are often quite as rich in vitamins as home cooked ones.

DIETARY FOR TUBERCULOSIS

In the face of existing uncertainties, it is clear that any conclusion about a diet for tuberculous patients must rest on large clinical experiments properly controlled over a considerable period of time. From such experiments and subsequent theoretical interpretations, a diet has recently been promulgated by Gerson, Sauerbruch and Hermannsdorfer. The principles of their recommendations embrace the whole field of body chemistry and involve a change in the soil in which the tubercle bacillus grows.

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[11] Meyerowitsch, Nadeschda: Ueber den Kochsalzstoffwechsel bei fiebernder Tuberkulose, Zurich, Gebr. Leemann & Co., 1911.

[12] von Bunge, Gustav: Lehrbuch der Physiologie des Menschen, Leipzig, F. C. W. Vogel, 1905.

The essentials of this diet are:

1. The all but complete exclusion of sodium chloride, with a sodium-poor but calcium-rich salt compound being used as a substitute.

2. (*a*) A large percentage of uncooked fresh vegetables in the diet, either in the form of vegetable extracts prepared by pressing uncooked vegetables, such as carrots, beets, spinach and turnips, or in the form of salads with added fruit juices similarly prepared. (*b*) Preparation of cooked vegetables in their own juices in waterless cookers.

3. Marked restriction of meats; Hermannsdorfer and Sauerbruch allow 600 Gm. weekly, Gerson much less. (The table shows the differences.)

Comparison of Suggested Diets for Tuberculous Patients

	Gerson Diet	Hermannsdorfer-Sauerbruch Diet
Proteins	About 55 to 67 Gm. daily	About 90 to 120 Gm. daily
80% Animal	Meat....... 100 Gm. weekly	600 Gm. weekly
20% Vegetable	Fish........ 70 Gm. weekly	About the same
	Viscera..... None (sweetbreads, etc.)	Rather freely permitted
	Legumes... None	Permitted
Fats	About 170 Gm. daily	About 170 Gm. daily
	Cream...... None	About 250 cc.
	Eggs....... Yolks only	Whole egg
Carbohydrates	Total—250 Gm. carbohydrates given daily	
	Sugar...... 20 Gm. weekly	About the same amount
	Honey...... 50 Gm. weekly	About the same amount
Fluids	1,400 cc. vegetable juices; fruit juices 600 cc.	Restricted vegetable and fruit juices; about 2½ pints in form of milk, cream, soup, juices, etc.
	Milk........ 250 cc.	About 1,000 cc.
	Soup....... None	
Sodium chloride	About 1.56 Gm. in food About 1.15 Gm. in juices About 2.7 Gm. of sodium chloride intake daily	
	Ratio of protein to fat to carbohydrate is about 1 to 5.6 to 3.4	Ratio of protein to fat to carbohydrate is about 1.5 to 2.7 to 3.7
Aim	Dehydration of tissues and altering body's mineral metabolism. Rich in fat, vitamins and minerals (perhaps protein). Poor in salt and carbohydrate. Vegetables steamed; much raw food given, with cod liver oil with phosphorus, and mineral compound (chiefly calcium). Calories: 21 to 23 calories per pound of body weight; 2,770 or 3,030 if patient weighs 132 pounds (60 Kg.). In Hermannsdorfer diet, calories furnished are 15 per cent by protein, 53 per cent by fat and 32% by carbohydrates.	

4. Restricted water intake, but fairly liberal amounts of freshly expressed juices of fruits and vegetables.

5. Various spices to increase the flavor of the dishes.

6. A mineral compound chiefly of calcium lactate and calcium phosphate, with calcium and magnesium combinations in the form of double salts; strontium, aluminum and silica in colloidal albumin combination, and a cod liver oil, each of these given three times a day.

7. Rich fat and protein, but low carbohydrate elements.

The theories of the mode of action of this diet entail a long and detailed discussion. In this paper I can merely review a few reported conclusions on the value of this diet and add my own impressions resultant from the observation of my own cases and of the cases of others which I was privileged to study in the past two and a half years.

The diet has been both vigorously attacked and enthusiastically supported. Each of the individual dietary factors has been singled out as advantageous by certain workers and just as strongly denounced by others. Some have found that the diet acidifies, others that it alkalizes. Proponents of the diet have aimed at desiccation of tissue through withdrawal of sodium chloride, while others claim a resulting tissue hydration as the cause of extravagant gains in weight.

Dörffel[13] recently found by skin section of treated cutaneous tuberculosis a dehydration of normal and diseased skin as well as a mineral displacement. Potassium was increased, and calcium and magnesium were diminished, while sodium was greatly diminished. These changes were particularly marked in the disease foci.

The withdrawal of table salt has been objected to also on the ground that it is needed for the production of hydrochloric acid of the gastric mucosa, yet actual test has proved the presence of sufficient hydrochloric acid and has shown about 3 Gm. of sodium chloride output in the urine. Its withdrawal has been urged as a measure of healing lupus, by reducing a cutaneous irritant that is stored and excreted by way of the skin. In some cases the diet has been said to increase and in others to decrease the sodium chloride of the blood. Some investigators further report a decrease in the blood calcium level, or an augmented alkali reserve, or high cholesterol values in the blood. The relative percentages of sodium chloride and protein content in the blood have been stressed, and some experimenters have considered sodium chloride as a sort of vitamin, an aid to restriction of protein decomposition. Phosphorus (as given in cod liver oil with phosphorus) has been objected to as dangerous in such dosage to the liver.

Despite the variations in the reported results of separate trials with this diet, many of its most violent opponents have admitted that this therapy is an advance. My own experiences very largely agree with the evaluation of it made by the Hamburg Medical Congress, that the diet is a distinct therapeutic advance as an aid generally effective in the treatment of lupus vulgaris, and occasionally in bone and joint tuberculosis, but that its value in other forms, more particularly pulmonary tuberculosis, is yet to be determined. I have discerned in it an alterative therapy. Symptomatic improvements, even in pulmonary tuberculosis, have been common, but the effective factor, even the psychotherapeutic one, cannot be evaluated here. However, the diet seems directly responsible for many relieved cases of functional disturbances attendant on pulmonary tuberculosis, especially with chronic constipation or gastric hyperacidity. And tuberculosis with the rare toxic nephroses or essential hypertonia or vasoneuroses has been helped by it.

The leading authorities report favorable effects from this diet in the treatment of lupus vulgaris: retrogression of swelling, flattening of the foci, and absorption and disappearance of the individual nodules. Lupus of the mucous membrane reacts even better than lupus of the skin. Foci of the nasal mucosa, the hard palate, the pharynx and the larynx have been benefited; the lupus foci about the gums of the teeth have been the most resistant. Noteworthy influence on exudative processes is clearly shown; the dry squamous forms react less favorably. The best results are seen when light treatment by general exposure in minimal doses is added. My conclusions are arrived at from the

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13. Dörffel, J.: Deutsche med. Wchnschr. 57:268 (Feb. 13) 1931.

observation of sixteen lupus cases whose treatment I directed others to carry out.

In an occasional sinus in genito-urinary and in bone and joint tuberculosis that has come under my observation, the diet has helped to bring about favorable closure where other therapeutic procedures had failed for from one to two years. Frequently there was a large gain in weight, which was not reduced by the administration of table salt (as a control test of hydration).

CONCLUSIONS

In this question of the mineral salt metabolism, it is possible that certain constitutions will react favorably to the withdrawal of table salt. And it is equally possible that some individuals will improve on a larger vitamin intake, the two factors correlating in some way biochemically. But any schematization of the dietary therapy for all constitutions must be rejected. A universally efficacious curative treatment for tuberculosis does not exist, but the resistance of inferior constitutions and of defective or deficient organic functions can be raised by correct dietary treatment, and the raising of this resistance represents the meritorious aspect of these new endeavors. Evaluation of specific factors must be held in abeyance.

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ROENTGENOGRAPHIC APPEARANCE OF THORAX AFTER RIB RESECTION FOR PULMONARY ABSCESS*

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While much has been written concerning the postoperative roentgenographic appearance of the abdominal viscera, particularly the stomach, there is little in the literature on the roentgen appearance of the chest organs after operations on the thorax. This is probably due to the infrequency of thoracic operations compared to the great number performed on the abdominal organs. It is important that the roentgenographic changes following operation be recognized because roentgenographic study may be the only form of postoperative examination possible. Adequate physical examination is often prevented by the skin incision and bulky dressings, and frequently the patient is too ill to be subjected to thorough auscultatory and percussion procedures.

This study is based on the postoperative roentgen observations of twenty-three patients on whom rib resection was done for pulmonary abscess. The patients ranged in age from 8 to 50 years; sixteen were males and seven females. In thirteen patients the abscess followed operation (in twelve tonsillectomy, in one hemorrhoidectomy); in nine patients it followed an acute respiratory infection (in two pneumonia, in one pneumonia and empyema, and in six nonspecific respiratory infection), and in one patient the abscess developed as a sequel to fracture of the mandible. The abscess in fourteen patients was on the right side and in nine on the left.

It is often impossible to determine just how much of the altered roentgenographic appearance is due to surgical procedure and how much to the disease itself. It is safe to say, however, that so far as the patient's condition is concerned the more serious changes are due to disease, and that changes wholly secondary to operation are trivial from the clinical point of view.

FACTORS DETERMINING THE POSTOPERATIVE ROENTGENOGRAPHIC APPEARANCE OF THE CHEST

1. *The number and portion of ribs resected.* Except in cases in which the surgeon finds the pleural cavity obliterated by inflammatory adhesions, drainage of pulmonary abscess* is conducted in two stages. The first is removal of the ribs and the placing of a gauze pack against the pleura to form obliterating adhesions; the second is incision of the abscess and excision of part of the abscess wall.

Swelling of the skin and subcutaneous structures after operation is readily recognized when the side operated on is compared with the sound side. It is conspicuous following both stages. Sometimes air can be seen in the subcutaneous tissues. The duration of the skin and subcutaneous changes varies; in most instances it requires about a month after the second stage for the swelling to subside entirely.

The most apparent change after rib resection is the absence of rib shadows over the area of operation. When resected posteriorly or in the axilla, the absence of the ribs is readily detected; but after removal close to the chondrosternal junction anteriorly, the absence is not so striking. In some instances, absence of a portion of a rib anteriorly may go undetected; this is particularly true when the pulmonary changes which might draw the examiner's attention to the absence have disappeared.

Removal of any considerable portion of several ribs leads to sinking in of the chest wall over the area. Pronounced deformity is brought out on anteroposterior roentgenograms when resection has been done in the axillary line (fig. 6). The skin and chest wall sink in to form a V-shaped cleft with the apex directed centrally. This retraction is most marked on roentgenograms made shortly after operation, but it persists in some degree forever.

Retraction of the anterior or posterior thoracic wall following resection of these portions of the ribs does not produce striking deformity in the outline of the chest on roentgenograms made in the anteroposterior direction (fig. 4 *B*). The deformity may be detected in lateral roentgenograms, though usually the shadows of the normal lung overlap and hide the retraction to a considerable degree.

Absence of the ribs anteriorly or posteriorly may be hidden by a large abscess or by extensive pleural changes unless the Potter-Bucky diaphragm is employed.

Osteomyelitis sometimes develops in the rib ends after resection. It is not a common complication. The changes are identical with those of the disease in any bone, but in the ribs differentiation from the changes of operative trauma uncomplicated by infection may be difficult. The pathologic changes in the ribs are sometimes hidden by pulmonary or pleural densities.

Ribs usually regenerate after resection if the periosteum is left intact. In children this is a rapid process and may be recognized roentgenographically as early as three weeks after removal. In adults a longer time is required. A man, aged 30, showed no evidence of regeneration at seven weeks and only slight regrowth at eleven weeks. When the periosteum remains in the rib bed, new bone may bridge the gap between the cut ends and form a smooth rib that cannot be differentiated from normal rib. Bridges of bone often join two or more ribs.

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* From the X-Ray Department, Jefferson Hospital.

* Read before the Section on Radiology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 12, 1931.

* The patients forming the basis of this study were operated on by Dr. John B. Flick, to whom the author is indebted for the operative and clinical notes.

Linear shadows resembling those seen in the lung at the site of an abscess and similar to some types of tuberculous fibrosis may develop anteriorly along shreds of periosteum left after resection. They are occasionally difficult to differentiate even in stereoscopic films from pulmonary changes. Usually, however, the markings due to periosteal regeneration pass downward almost at right angles to the end of the resected ribs, whereas pulmonary fibrosis due to inflammatory change develops in the direction of the spread of the bronchial branches. In the apical portion of the lungs this is upward and lateral, and in the middle and lower portions downward and lateral, in any case being more nearly parallel to the ribs or at a less acute angle to them than the linear markings of periosteal regeneration.

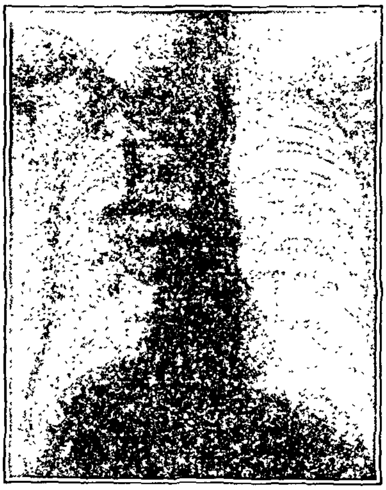

Fig. 1.—Indentation of the lung by gauze packed against the pleura in a man, aged 23, Jan. 30, 1930: Abscess of the right upper lobe, resection anteriorly one week earlier; deformity slight; swelling in the soft tissues.

When the wound is packed with plain gauze at the first stage, the shadows of the lung are not altered unless, as is the case in deep-seated abscesses, a strip of sound lung lies between the abscess and the pleura. The normal lung tissue overlying a deeply seated abscess is compressed by the packing, and a dense crescentic shadow forms at the perimeter of the lung with its concavity peripheral and convexity central (fig. 2). Iodoform gauze used as packing casts a distinct shadow.

It is important for the roentgenologist to know the operative procedure employed, for compression of a lower lobe may simulate an interlobar empyema. Figure 2 illustrates the roentgenographic appearance of a chest in which lobectomy was contemplated for bronchiectasis secondary to pulmonary abscess. A rubber dam placed between the under surface of the lower lobe and the diaphragm and packed with gauze has compressed the lung. The airless compressed lower lobe casts a shadow which might be mistaken for an interlobar empyema.

2. *The character of the pleural changes.* Both preoperative and postoperative changes in the pleura influence the roentgenographic appearance. Edema of the pleura or fluid in the pleural cavity, when present before operation, may obscure the abscess and normal lung and, when occurring postoperatively, hide the rib and pulmonary changes.

Preoperative pleural edema sometimes simulates the density of empyema and may be mistaken for it. It occurs complicating peripherally located abscesses and produces a homogeneous shadow resembling that of fluid. A diagnosis of fluid in the pleural cavity was made in two instances in this series and at operation only a markedly thickened and edematous pleura was found without free fluid (fig. 3).

The commonest roentgenographic finding immediately after operation is an increase in the size of the shadow of the diseased area accompanied by a slight increase in density (fig. 4). It is due to swelling of the pleura secondary to the operation, and is particularly well defined over the axillary border of the chest on the anteroposterior roentgenograms. Return to normal is usually rapid and follows absorption of the edema, though occasionally marked pleural edema may leave a residual thickening persistent for months.

Fluid occasionally develops in the pleura after operation. It is practically always due to extension of the disease to the pleura and is usually independent of the operative procedure. In most instances a pyopneumothorax develops and presents the classic signs of the condition, displacement of the heart and a horizontal fluid level on roentgenograms made with the patient erect. Encapsulated collections of fluid sometimes form, and interlobar collections are occasionally seen. Drainage leads to regression of their shadows.

There is nothing in the appearance of empyema developing postoperatively to set it apart from empyema occurring independently of operation. It usually masks the underlying pulmonary condition. Drainage lessens the density of the shadow, but, even after it has been done, it may be impossible to determine which of the remaining shadows are due to pulmonary disease and which arise from the pleural changes.

3. *The postoperative course of the disease and time after operation that the roentgenogram is made.* Many postoperative alterations are due to the disease and not to the operation. Extension of the lesion may take place, or new abscesses may develop. Their shadows depend on the extent and character of the new changes. Occasionally, small inflammatory foci develop in sound lung tissue and disappear by absorption without actual abscess formation.

In uncomplicated abscess going on to recovery, a gradual diminution in the density of the markings at the site of the abscess takes place. This begins at the periphery and progresses to the center. Usually there is left only an annular scar of fibrous tissue or radiating linear densities taking the direction of the vessels and bronchi. In time these ordinarily disappear and leave a normal pulmonary parenchyma. In the upper lobe fibrous tissue strands course upward and outward, in the lower lobe downward and outward. Scars in the upper lobes may be diagnosed as tuberculous in origin unless one is familiar with the patient's history. Lower lobe scars are similar to the shadows of bronchiectasis; indeed, they are sometimes due to

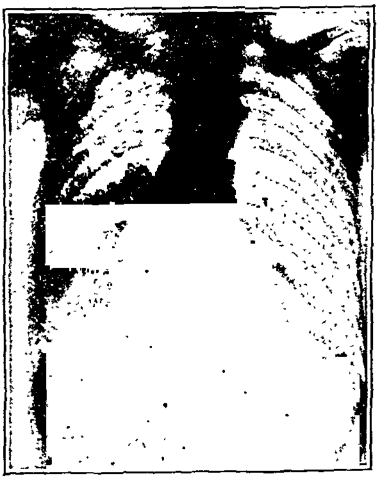

Fig. 2.—Compression of the lower lobe by a pack placed between it and the diaphragm simulating an interlobar collection of fluid, in a man, aged 44.

bronchiectatic dilatations at the site of the abscess. Bronchoscopic pneumography is necessary to differentiate residual interstitial fibrosis from bronchiectasis.

Multilocular abscesses or abscesses with indurated lung about the cavity show no change immediately after the second stage. This is due to the fact that it takes some time for the atelectatic lung to reexpand, and a dense shadow is cast until the lung is fully aerated.

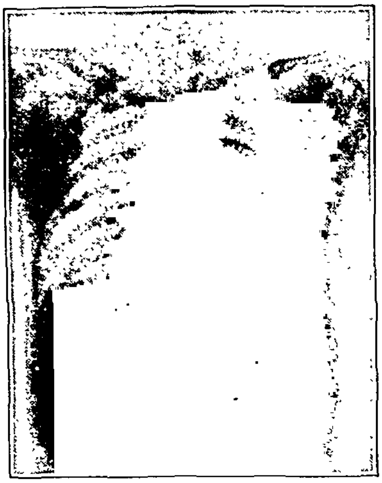

Fig. 3.—Edema of the pleura occurring preoperatively simulating an empyema, in a man, aged 31, Dec. 23, 1929: Abscess of the left lower lobe. At operation no free fluid was found in the pleura.

4. *Technic of examination.* Accurate comparative studies require similar exposure technic preoperatively and postoperatively. As a routine, preoperatively, stereoscopic postero-anterior exposures and a lateral view with the patient erect are made. In addition, exposures should be made anteroposteriorly and laterally with the patient in the horizontal plane. The latter preoperative exposures are necessary because after operation the patient is often too ill to permit the examination to be made with him sitting up or standing.

For some days after rib resection the patient is unable to raise his arm on the side of operation above his head as is necessary for the best lateral views. During this time he can extend it only at right angles. This position of the arm obscures the area of the upper lobe anteriorly, and in some cases may cast a shadow simulating interlobar changes.

5. *Sex and age.* Sex influences the appearance of the postoperative roentgenograms only in that the soft tissues of the female breast are disturbed. An incision above the breast may cast a finger-like shadow of lessened translucence. When this extends laterally to the axilla the condition is readily recognized, but when the incision is wholly anterior the area of lessened density often resembles a pocket in the lung. These translucent areas are due to separation by the packing of the skin edges of the wound at the site of the incision. A similar shadow is occasionally seen in males with well developed pectoral muscles.

Age is an unimportant factor unless the patient is not fully grown. In this group of patients, all but one had obtained practically mature growth. In a boy, aged 8 years, in whom an abscess developed in the right upper lobe after empyema, rib resection in the axillary line was followed by fusion of the regenerated ribs. The abscess entirely disappeared but the affected half of the chest has not developed normally, and three years after recovery its diameter is only half that of the normal side (fig. 5).

TYPES OF POSTOPERATIVE ALTERATIONS ROENTGENOGRAPHICALLY OBSERVED

Two types of alteration are seen roentgenographically after rib resection, structural and positional. The structural changes concern, first, the external conformation of the chest and follow the effects of the operation on the skin, subcutaneous tissues and ribs, and they also concern the intrathoracic organs, the pleura and lungs.

Alterations of position affect the diaphragm, heart, trachea and other mediastinal structures.

Structural changes of the skin, subcutaneous tissues and ribs alter the external conformation of the chest. The degree of deformity is determined by the length and portion of the ribs excised and by the time subsequent to operation that the roentgenogram is made. Swelling of the thoracic wall, sometimes accompanied by air which entered the tissues at the time of operation, and absence of rib shadows without evidence of osseous regeneration are the changes in the chest wall detected immediately after operation (fig. 4). The swelling lessens rapidly and the chest wall returns to normal thickness, the extent of the final deformity depending on the degree of retraction. If the periosteum has been left intact, rib regeneration usually takes place; in some cases it follows the bed of the resected ribs and in others produces osseous bridges spanning intercostal spaces to join two or more ribs together. The most marked roentgenographically recognizable deformities occur when resection is done in the midaxillary line (fig. 6). Resection posteriorly produces less distortion (fig. 4 *B*). After removal of ribs anteriorly, the deformity may not be roentgenographically recognizable on anteroposterior views and in lateral exposures may be obscured by the overlying shadows of the sound lung.

Structural changes of the pleura and lung have little effect in adults on the external conformation of the chest but produce roentgenographically recognizable changes within the chest. Pleural abnormalities are due either to edematous swelling or to the formation of fluid. Edematous thickening of the pleura as well as edematous swelling of the subcutaneous tissues practically always occurs after rib resection. The edema may be very slight and seen only along the axillary margin as a shadow a few millimeters thick, or it may be so marked as to obscure the entire side of the chest and hide the underlying pulmonary disease. In the latter cases the pleura is often a centimeter or more thick. Swelling of the pleura occurs preoperatively (fig. 3) and may be mistaken for empyema, as was done in two of our cases. Empyema sometimes develops during the postoperative course of lung abscess; the pus may be free or encapsulated.

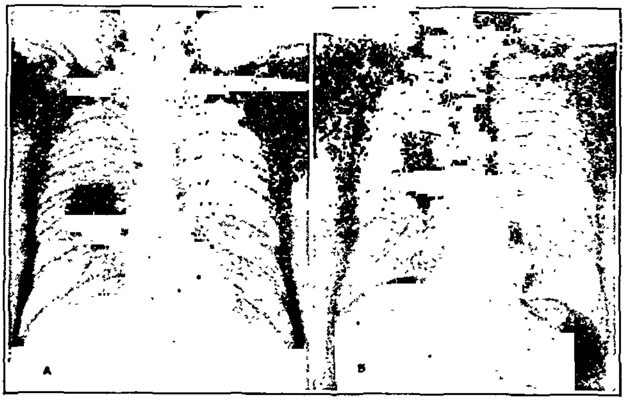

Fig. 4.—Abscess of the right lower lobe in a man, aged 50: *A*, before resection; *B*, eight days after the first stage. The size and density of the diseased area have been increased owing to swelling of the pleura. The subcutaneous tissues are swollen and contain air.

It is difficult to separate the component shadow densities when an abscess is accompanied by extensive pleural reaction. Regression of the abnormal shadows in both the lungs and the pleura takes place gradually, and usually the shadows finally disappear entirely.

Bronchopulmonary fistulas sometimes remain after external drainage of a pulmonary abscess. Their presence cannot be detected by direct roentgenography. They may be outlined by injection through the skin opening of an opaque medium such as iodized poppyseed oil. Bronchoscopic pneumonography is frequently helpful in determining the relation of the sinus to the bronchial tree of the lobe involved.

The pulmonary changes depend on the site and size of the abscess, on the condition of the pleura, and on the time elapsed after operation. When peripherally located, a unilocular abscess unaccompanied by pleural complications will lessen in density and extent immediately after evacuation, but if it has a well organized wall an annular shadow will persist unless the wall is excised at operation. An abscess surrounded by a zone of increased density due to indurated lung undergoes peripheral clearing which finally reaches the center of the area. Similar gradual regression follows evacuation of multilocular abscess with an encompassing pneumonitis, but return to normal takes longer and may be followed by a persistent scar of fibrous tissue resembling, when in the upper lobes, tuberculous fibrosis, and, when in the lower, bronchiectasis.

Abscess associated with pleural disease requires a longer time for complete disappearance of the abnormal roentgenographic shadows than uncomplicated abscess.

Change in the position of the thoracic viscera plays but a minor rôle in the postoperative roentgenographic appearance of pulmonary abscess. It is not the prominent feature of abscess that it is of such intrathoracic conditions as bronchial new growth, bronchial foreign body, postoperative pulmonary collapse or pleural effusion. The position of the diaphragm is altered more than that of the heart, trachea or other mediastinal structures; this, too, contrasts with the observations in other conditions. In empyema and obstructive emphysema displacement of the heart, aorta and trachea away from the affected side is pronounced; and in postoperative collapse or atelectasis secondary to bronchial foreign body or new growth, drawing of these structures toward the diseased side is characteristic. The position of the diaphragm in these conditions is often an unimportant diagnostic point; but in roentgenograms made after rib resection for pulmonary abscess the altered position of the diaphragm may be the only evidence of displacement, the heart, trachea and mediastinum maintaining their normal relations (fig. 6).

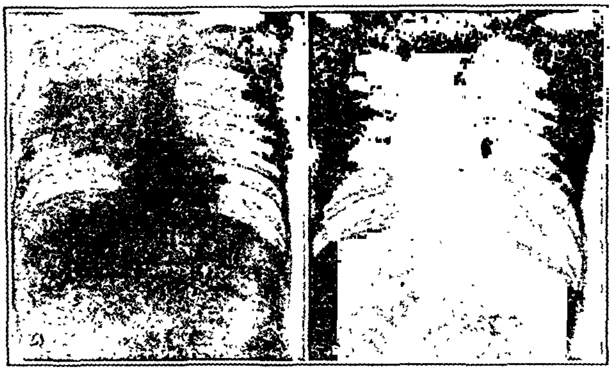

Fig. 5.—Abscess of the right upper lobe complicated by empyema, in a boy, aged 8 years: *A*, before resection for abscess; deformity of the eighth rib posteriorly resected for an earlier empyema is apparent. *B*, thirty-three months after resection. The right half of the chest is less well developed than the left. Dense bridges of bone unite the resected ends, but there is still retraction of the soft tissues. A small scar remains in the lung.

This study has demonstrated that the positional change of the diaphragm after rib resection is directly proportional to the extent of the accompanying pleural changes. In patients without pleural complications, no change takes place. Mild reaction in the pleura causes the half of the diaphragm on the diseased side to rise slightly (fig. 4 *B*) and to remain elevated until the reaction subsides. Extensive pleural thickening or the development of an empyema always leads to marked elevation of the diaphragm on postoperative roentgenograms. After subsidence of the edema or evacuation of the fluid, this persists for a long time; in fact, the affected half of the diaphragm may remain above the normal long after the scar in the lung has disappeared. This persistent elevation is secondary, I believe, to fibrous tissue formed at the site of the abscess. After the empyema is drained or the edema absorbed, the lung is prevented from fully expanding by the scar, and the diaphragm remains elevated. The mechanism of the diaphragmatic elevation differs from that of the elevation seen in extensive fibrotic tuberculous lesions in that the pulmonary fibrosis in tuberculosis is directly responsible for the contraction of the lung, and elevation of the diaphragm follows without intermediary pleural changes. Pulmonary fibrosis is not an outstanding roentgenographic characteristic of pulmonary abscess postoperatively. It is pronounced only in those cases in which there have been marked changes in the pleura. Similarly, and probably for the same reason, bronchiectatic changes occur postoperatively more commonly in abscess complicated by pleural disease than in uncomplicated cases.

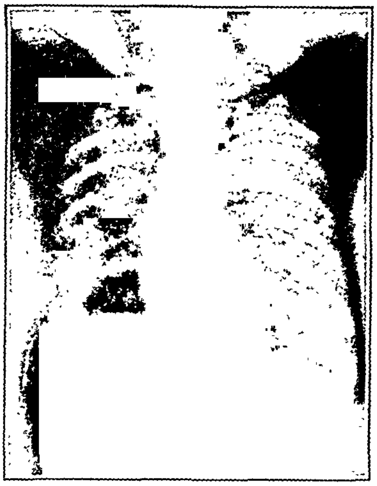

Fig. 6.—Retraction of the subcutaneous tissues five months after resection in the midaxillary line in a man, aged 33; abscess of the middle lobe; regeneration of ribs, residual thickening of the pleura, and scar in the lung at the site of the abscess. Note elevation of the diaphragm. Empyema, probably interlobar, complicated this abscess.

SUMMARY

1. In the study of a series of twenty-three patients, on whom rib resection was done for drainage of pulmonary abscess, it appears that the postoperative roentgenographic appearance of the chest is determined principally by the number and portion of the ribs resected, the character of the pleural changes, and the postoperative course of the disease.

2. Changes in the postoperative roentgenogram are structural and positional.

(*a*) Structural changes involve the skin, subcutaneous tissues, pleura and lungs and are influenced by the type of operation, the size and location of the abscess, the character of pleural complications and the postoperative course.

(*b*) Positional change is not the marked feature of abscess either before or after operation that it is of other pulmonary diseases. It affects the diaphragm more than the heart or trachea. Elevation of the diaphragm is seen in those cases associated with pleural edema or empyema. It is probably due to fixation of the lung by fibrosis developing at the site of the abscess while the lung is compressed by the pleural complication.

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ABSTRACT OF DISCUSSION

Dr. Merrill C. Sosman, Boston: I think the last thing Dr. Farrell said is probably the most important, namely, that the changes due to the disease are of great import to the patient and to the surgeon, whereas those due to the operation are, with the exception of the rib deformity, of much less importance. There is great difficulty in distinguishing between the changes due to the operation and those occurring as the natural sequence of disease. I think one thing of value in the differentiation is the rapidity of change. The conditions resulting from the operation are usually of short duration and they change rapidly. They are either edema or hemorrhage in the majority of cases. Those due to the disease are of much longer duration and change much more slowly. Dr. Farrell stressed the postoperative edema of the pleura, which at times is difficult to differentiate from pneumonia, from intrapulmonary hemorrhage and from empyema following operation on a lung abscess. There again the rapidity of change, I think, is one of the important, decisive factors in determining what is present. A third point he brought out was the necessity of getting a roentgenogram before operation in the position in which the patient is going to be after operation. It is difficult to get stereoscopic roentgenograms before operation and then try to estimate the change in the lung that has occurred when one has a portable apparatus, the patient lying on his back in bed and surrounded by a large number of dressings. It is difficult to compare lesions in the first set of films with the portable film. For that reason I am in favor of his suggestion of getting a roentgenogram before operation with the patient lying on his back. It is always wise when one is dealing with lesions in the right lung to look carefully for the interlobar septum between the upper and middle lobes. That sometimes is of great help in determining how much change in position of the lung, how much shrinkage or expansion is occurring from day to day. It has amazed me to find how variable the interlobar septum is. It may be as high as the first rib or it may be way down within an inch of the diaphragm. Its position may change rapidly from day to day, depending on the amount of the atelectasis or fibrosis present.

Dr. Samuel Brown, Cincinnati: I should like to recommend that the interlobar pleura be studied in the lateral view. Such a study may often help one to differentiate between a pulmonary abscess and an encapsulated interlobar empyema. These two conditions are often confused if one confines oneself to the anterior view.

Dr. John T. Farrell, Jr., Philadelphia: Dr. Sosman was very good to emphasize a point which I failed to make regarding the technic of operation. The last case was that of a small boy. At operation the empyema was not interlobar. The pus was free in the pleural cavity.

Insight into Womankind.—Gynecology has moreover a feature that is not shared with any other branch of medicine in that its practice is limited to one sex, and my contention is that those professing it should be much more than surgeons with a special flair for the female pelvic organs. Their insight into womankind should surely be something more than that disclosed by their inspections of the varying anatomical and pathological appearances met with in the reproductive apparatus. It is in this regard that the gynecologist has, in my opinion, failed to make the most of his undoubted opportunities, and I will follow the matter a little further.—Fairbairn, J. S.: The Medical and Psychological Aspects of Gynecology, *Lancet* 2:999 (Nov. 7) 1931.

THE TREATMENT OF EMPYEMA *

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The course and outcome of an empyema is determined not only by treatment but also by type and virulence of infection, pathologic anatomy, age and general condition of the patient, and the nature and gravity of the primary infection of which it is almost always a complication.

From the standpoint of treatment, empyema may be classified as pyogenic and tuberculous. The pyogenic form is subdivided into the acute and chronic; the tuberculous, which practically always becomes chronic, into that form in which there is, and that in which there is not, clinical evidence of pulmonary tuberculosis. The treatment of these several types will be discussed in order.

ACUTE PYOGENIC EMPYEMA

Empyema is recognized as pyogenic by the demonstration of the organism in a smear or culture of the aspirated pus. The pneumococcus, streptococcus and staphylococcus are the most common infective organisms, in the order named. These, and other bacteria, occur in pure culture and with anaerobes in varying combinations. Their virulence varies seasonably, and among individual patients, to a marked degree.

Pneumococcic empyema in adults is usually metapneumonic, developing after the pneumonia has subsided; the streptococcic is often synpneumonic, forming during the course of pneumonia. In infants pneumonococcic empyema is most common as in adults but, like the streptococcic, is usually synpneumonic.

An ordinary mild metapneumonic empyema is usually encapsulated by adhesions at the time it is first recognized. A streptococcic empyema may require two or three weeks for encapsulation. In the stage before adhesions have formed, the pus is characteristically thin; when it has become thick and creamy the presence of adhesions may be assumed. In any type of virulent infection the effusion accumulates rapidly and is at first seropurulent.

Empyema cavities vary greatly as to position and size. The usual position is in the lower posterolateral portion of the pleural cavity, but it may be in the paravertebral gutter, anterolateral, diaphragmatic, mediastinal, apical or interlobar. Multilocular and multiple isolated pockets occur. Occasionally both pleural cavities are involved. In size they vary from 30 cc. or less to 3,000 cc. or more, occupying then the whole pleural cavity, and, by bulging the mediastinum, encroaching on the opposite lung. Empyemas following pneumothorax, and those due to virulent infection are characteristically large.

Bronchial fistulas may result from an etiologic rupture of a pulmonary abscess into the pleural cavity, or from perforation of an empyema into a bronchus.

The fundamental principle in the treatment of empyema is complete drainage, obtained early and maintained until the cavity is obliterated by reexpansion of the lung. The ideal method, in any given case, is that one which brings this about at the least risk to the individual patient, and with a minimum sacrifice of structure and function. A short convalescence is highly desirable but is of distinctly secondary importance.

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

Since empyemas vary so greatly etiologically, structurally and clinically, it follows that no one method is universally suitable. The treatment to be most effective must be individualized.

Drainage may be accomplished by the so-called closed or open method, with or without irrigation, of which the various drainage devices, operative procedures, and irrigating solutions periodically rediscovered and advocated are simply variations.

After decades of discussion there persist the most divergent and even diametrically opposed views as to the relative merits of the closed and open method, and as to the usefulness of irrigation. Their attempted evaluation has been based chiefly on a comparison of statistics, in which sufficient account has not been taken of the many variable factors that influence the results of any given method. The age and general condition of the patient, the virulence of the infection, and the nature and severity of the underlying disease, as well as treatment, influence mortality. All play a part in the development of complications, which are so frequently the cause of death.

Chronicity may be attributable to the method as such, but also to the failure to carry out the principles involved. If an empyema cavity is kept empty of pus all the time, there will be a minimum of chronicity; while if drainage is not efficient, there will be a relatively large incidence of chronicity, regardless of the method of treatment. Duration of convalescence based on incomparable standards is used as a criterion in comparative studies of methods of treatment. A sinus may persist for months after the patient is discharged and may represent a persistent cavity. The degree of loss of function and of deformity should enter into the evaluation of any method.

Improvement of results and an increasing approachment of opinion regarding methods would seem to lie not so much in the study of inconclusive and incomparable statistics as in the direction of more attention to fundamental principles and more individualization of treatment.

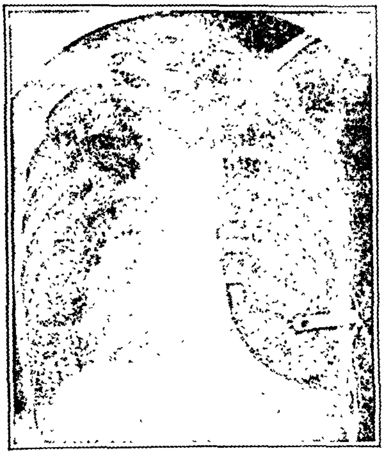

Fig. 1.—Traumatic empyema: fractured ribs with total collapse of lung of three months' duration. The patient is seemingly in a hopeless condition.

The fundamentals of treatment would seem to be drainage without embarrassment of respiration and circulation, reexpansion of the lung and general supportive measures.

The principle of drainage, kept adequate until the cavity was obliterated, established by Hippocrates, and more or less followed up to the time of the Arabian ascendency in medicine, was then, with few exceptions, discarded, up to a half century ago;[1] it is even now not sufficiently appreciated, as evidenced by the discussions as to when a tube should be removed and by the constant succession of chronic cases from insufficient drainage.

Reexpansion of the lung is essential to the normal obliteration of the empyema cavity. The chief mechanism by which it occurs in the presence of an open pneumothorax was explained by Weissgerber,[2] in 1879, as dependent on the paradoxical expansion of the collapsed lung by positive intrabronchial pressure, incident to forced expiratory effort, as in straining or coughing, by which the lung edge may be forced even into the wound. During this oft repeated expiratory expansion the lung gradually becomes adherent to the chest wall, first at the points of firmest and most prolonged contact. Its further expansion is favored by the same mechanism, and by the constantly progressing scar tissue formation and contraction along the angles of contact between visceral and parietal pleura, as pointed out by Roser[3] in 1878. These mechanisms may fail, and the lung then remains collapsed, unless its expansion is assisted by the development of a temporary or continuous, greater or lesser degree of negative tension in the cavity.

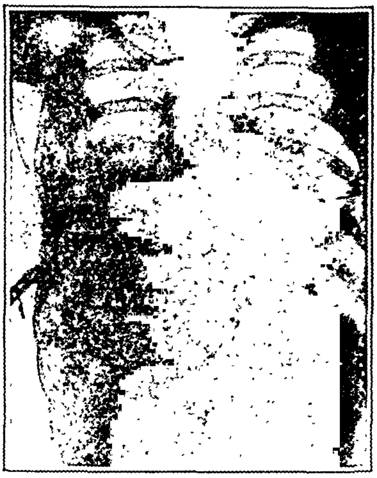

Fig. 2.—Same patient as in figure 1, showing degree of reexpansion of the lungs following irrigation with surgical solution of chlorinated soda through draining sinus.

The possible unfavorable influence of open pneumothorax in the treatment of acute empyema was recognized by the ancients. The simplest unpremeditated device for producing a negative tension in the cavity was the pus soaked dressing, around which air escaped during expiration, but which in part prevented its reentry during inspiration. This principle of the valve, more perfectly applied, is represented in the various skin muscle flaps, which are shaped at drainage operation, and in the numerous mechanical drainage devices that are now in use. Forced respiration by the use of the Wolf blow bottles and by other devices, including carbon dioxide rebreathing,[4] enhance their effectiveness as well as promoting reinflation of collapsed alveoli.

Valve action plus active suction is embodied in the siphon drainage of Buelau,[5] by which suction is kept up to the weight of the column of pus filling the rubber tube, inserted into the cavity through a more or less air tight stab wound. The valve action is provided by keeping the open end of the tube under water. The suction theoretically amounts to the length of the column in terms of water pressure, i. e., from 30 to 40 cm., but it must be recognized that the resistance of thick, more or less sticky, pus against the tube wall greatly reduces this pressure.

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[1] A comprehensive historical review may be found in Hedblom, C. A.: The Treatment of Chronic Empyema, Ann. Surg. **72**: 289-326 (Sept.) 1920.

[2] Weissgerber, P.: Wie entfaltet sich nach der Operation des Empyems die conprimerte Lunge bei offenstehender Pleura Höhle, Berl. klin. Wchnschr. **16**: 107-108, 1879.

[3] Roser, W.: Ueber die Operation des Empyems, Berl. klin. Wchnschr., 1878, p. 682.

[4] Churchill, E. D.: The Reexpansion of the Lung in Empyema with Notes Regarding the Mechanical Effects of Carbon Dioxide Inhalation, Boston M. & S. J. **194**: 623 (April 8) 1926.

[5] Buelau, G.: Für die Heber-Drainage bei Behandlung des Empyems, Ztschr. f. klin. Med. **18**: 31-45, 1890-1891.

Perthes[6] further increased the negative tension by introducing a water suction pump into the drainage system, regulated by a water valve, so as to produce a suction equal to from 40 cm. to 120 cm. of water pressure. The various other suction devices are modifications of this method.

Perhaps the most fundamental and important contribution to the treatment of acute empyema, since Hippocrates, was the demonstration by Graham and Bell,[7] during the time of the World War, that under normal conditions the mediastinum in man is so mobile that from the standpoint of the intrapleural pressure relationship the two pleural cavities function as one. By so doing these investigators established the rationale for the avoidance of a wide open pneumothorax in an early acute empyema, and for the substitution of the closed method of treatment in such cases. As is well known, the mortality following this introduction of aspiration, and closed drainage of the streptococcus epidemic empyema cases, dropped from a maximum of 84 per cent, and an average of over 30 per cent, to an average of under 5 per cent. While the high mortality was doubtless due in considerable measure to the virulence of the infection and to the effect of a general septicemia, of which the empyema was only a part, and while the fall in mortality was due in part to a decrease in virulence of infection, it is generally recognized that it was due in large measure to the avoidance of open pneumothorax. The application of this principle to the treatment of acute empyema seems obvious. In the presence of an early acute empyema with a mobile mediastinum, an opening into the pleural cavity, of the size usually made for draining an empyema, lowers the respiratory capacity of both lungs. A normal individual has from four to seven times the respiratory capacity required when at rest. He has therefore a large reserve for compensating for the handicap of an open pneumothorax, of which he avails himself automatically by deeper and more rapid breathing. If, however, his vital capacity is greatly lowered by a pneumonia and associated toxemia, or if it is lowered by other serious illness, by operation or by old age, the added load imposed by the open pneumothorax affecting both lungs may be more than his reserve capacity can compensate for. An infant has normally a very low vital capacity, which a synpneumonic pneumonia further reduces. To do a wide open operation, therefore, early in a synpneumonic empyema, in a critically ill patient from any cause, or in an infant, is to contribute to an unnecessarily high operative mortality. Open operation in such circumstances, in my opinion, is chiefly responsible for the excessive mortality in infants under 2 years of age.

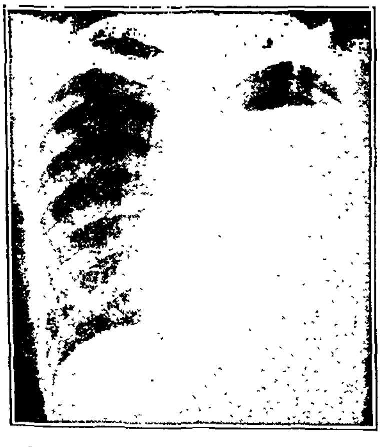

Fig. 3.—Massive tuberculous empyema with secondary infection.

The alternate method in such cases is aspiration or closed drainage. Aspiration of the pus at intervals of one or more days cannot properly be classified as a method of drainage, in that it removes only part of the pus. It is the most conservative and proper method of relieving mechanical embarrassment during the synpneumonic stage preparatory to instituting closed drainage, and it is particularly valuable in infants. A cure may be effected in the case of a small empyema cavity due to mild infection. If pus continues to form, adequate drainage is indicated. However, to continue with aspiration indefinitely is to repeat the experiences of the period before antiseptic surgery, when cases were reported in terms of the number of aspirations performed, and the collective amount of pus obtained. One instance is recorded of 122 aspirations in eleven months (Bouchet[8]), another of 50 gallons of pus aspirated. Simmons[8] recorded forty-eight cases treated by aspiration, of which forty-two were unimproved. Sir Astley Cooper[9] complained that he had never had a cure. Dupuytren[10] had four cures among fifty patients, and when he himself developed an empyema chose to die "by the hand of God rather than by the hand of the surgeon." The complications developing after prolonged aspiration are probably due more often to lack of drainage than to the disease causing the empyema, to which it is usually credited. It seems at least open to serious doubt whether infected effusion, even in the early, seropurulent, stage ever exerts any beneficent action by "resting the lung," or by stimulating antibodies.

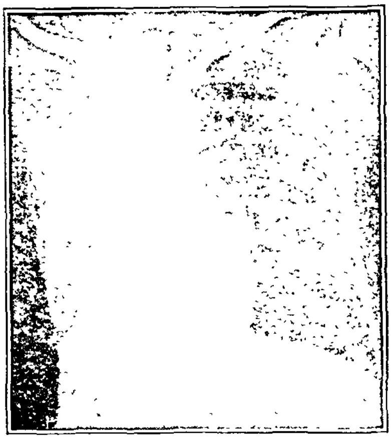

Fig. 4.—Same patient as in figure 3, following posterior thoracoplasy and resection of the anterolateral rib segments for obliteration of the cavity.

Recently Danna[11] has reported favorable results from aspirating all the pus, and substituting equal amounts of air, injected through the aspirating syringe. This method has long been in use in the treatment of tuberculous empyema,[12] particularly that variety of empyema complicating therapeutic pneumothorax treatment for tuberculosis. Elias,[13] in 1925, advised the procedure in nontuberculous empyema, and Davis[14] combined it with irrigation.

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[6] Perthes, G.: Ueber ein neues Verfahren [illegible] Operation des Empyems und zur Beseitigung des [illegible] auf einem Defect der Thoraxwand beruht, Beitr. z [illegible] 1898. Perthes, G., und Haussecker, E.: Erfahrungen bei der Nachbehandlung der Empyem operation mit aspiration, Müenchen. med. Wchnschr. **71:** 1263-1265 (Sept. 12) 1924.

[7] Graham, E. A., and Bell, R. D.: Open Pneumothorax—Its Relation to the Treatment of Empyema, Am. J. M. Sc. **156:** 839-871 (Dec.) 1918.

[8] Quoted by Schede: Die Behandlung der Empyems, Verhandl. d. ix Cong. f. innere Med. **9:** 41-141, 1890.

[9] Cooper, Astley, cited by Dieffenbach: Die operatione Chirurgie **2:** 381, 1848.

[10] Dupuytren, quoted by Küttner: Chirurgische Operationslehre, Beitr. A.

[11] Danna, J. A.: The Treatment of Empyema by Aspiration and Air Replacement Without Drainage: Review of Thirty-Five Cases, J. A. M. A. **96:** 1453-1456 (May 2) 1931.

[12] Wenckebach, K. F.: Ueber Heilung der chronischen (tuberkurlōsen) Empyems mittels Künstlichern Pneumothorax, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **19:** 842, 1909.

[13] Elias, H.: Zur Behandlung der akutes Thoraxempyems mit künstlichem Pneumothorax, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **38:** 543-549, 1925.

[14] Davis, L.: The Morelli Method of Aspiration Drainage for Acute Empyema, Ann. Surg. **72:** 327-332 (Sept.) 1920.

One important difference between this method and simple aspiration is that the pus may be practically all removed. What the influences of the air may be seems uncertain. I have used the method in tuberculous empyema but the pus has regularly reaccumulated for many months until thoracoplasty was performed.

Closed drainage can be made to approximate simple aspiration as an operative procedure. It can easily be done in the patient's room. The technic which I have followed with much satisfaction for twelve years is essentially as follows: Under local anesthesia a catheter (number 22 F.) is inserted through an ordinary bladder trocar and cannula, which it just fits, and fastened in place essentially after the method described by Mozingo,[15] and recently by Alexander.[16] Pus is then aspirated by means of a 60 or 120 cc. glass syringe. If the patient is an adult and the cavity is large, from 200 to 300 cc. is drawn off. The tube is then clamped and the piston of the syringe is removed. Saline solution in amount a little less than the amount of pus evacuated is then introduced by gravity, through the barrel of the syringe used as a funnel. The same amount of the mixture of pus and saline solution is now aspirated, a syringeful being first reinjected a few times to bring about a complete mixture. The process is repeated until the solution returns fairly clear. The catheter is now clamped off or attached to a tube after the method of Buelau. The process is repeated every two hours during the day and once or twice at night while the patient is toxic and the cavity is large. The nightly irrigations may then be omitted, but continuing it insures better drainage. Often it can be carried out without awakening the patient from sleep.

If there is no evidence of a bronchial fistula, e. g., no cough and sputum and no irritation during the irrigation with saline solution, surgical solution of chlorinated soda is substituted after the first two or three irrigations. If there is any doubt, the saline solution can be colored with methylene blue (methylthionine chloride U. S. P.). If the patient coughs up colored sputum, the presence of the fistula is proved, in which case only saline or nonirritating, weak, antiseptic solutions are used as long as there is evidence of its persistence.

In infants a smaller catheter is used and only small amounts of pus are withdrawn before saline solution is substituted. In this way there is no appreciable fluctuation in intrathoracic pressure.

Sometimes fibrin plugs the cathether during the first few irrigations. In my experience this has never occurred until some of the pus has been withdrawn. It is then permissible to introduce an equal volume of surgical solution of chlorinated soda for the purpose of softening up the fibrin. After this procedure has been repeated for a few two hour intervals, the fibrin is dissolved. Introduction of acid pepsin for the same purpose is recommended by Hermannsdorfer[17] and

By this simple method the cavity is not only kept emptied of pus but its walls are washed mechanically clean, fibrin and necrotic material are dissolved, and, if surgical solution of chlorinated soda or other bactericidal solutions are used, the surfaces are at least partly sterilized. The lung is kept partly expanded from the others. onset of treatment. The tube remains practically air tight for from one to three weeks or more. If air is excluded from the tube for such a period, which is an easy matter, the degree of expansion of the lung is controlled by the amount of fluid left in the cavity at each irrigation. By filling it to capacity once a day, by a few centimeters of gravity pressure, pocketing of pus is prevented. It is important to observe this precaution, especially during the first week, when dealing with very large primary cavities. Later, the same procedure serves to measure the progressive obliteration of the cavity. After the first few sittings the irrigations can be entrusted to a nurse, with the simple precaution never to inject the solution but always to use gravity in filling the cavity, and to discontinue the irrigation if the patient coughs unusually, or tastes the solution, or if the return becomes blood streaked. By the observance of these simple precautions I have never seen any untoward results from bronchial irritation, "pleural reflex," air embolus or sudden collapse, occasionally mentioned in the literature.

Irrigation is continued until the cavity is obliterated or until there is no further decrease in the size of the cavity. At such a stage the patient is practically always in good condition and the resection of a rib, with or without removal of the parietal pleura for open drainage, is simple and safe. If the cavity is of 50 cc. or more capacity, a complete removal of the roof of the cavity shortens convalescence. It is emphasized that the closed drainage is not done for the purpose of avoiding rib resection but to safeguard the life of critically ill patients, to give the less ill patient the benefit of what may well be termed the "de luxe" treatment, and to prevent the development of a large chronic cavity.

Cellulitis of the chest wall along the catheter sometimes develops, especially in patients who have a virulent infection, such as from mixed anaerobic and pyogenic organisms from the rupture of a lung abscess, and who cough a good deal. Such infection calls for open drainage, and for wide incision of the cellulitis as when occurring elsewhere.

Other varieties of the closed method, based on the procedure of Buelau and of Perthes are on the same principle as that described except that they do not include irrigation. Hart's[18] ingenious method included tidal irrigation, brought about by the respiratory fluctuating intrapleural pressure. Whether or not a rib is resected is of no particular consequence, except that leakage around the tube is perhaps more apt to develop.

In the milder types of acute empyema, in adults in good general condition, the choice between an open or a closed method of treatment depends largely on the size of the empyema cavity. If it is of large capacity, particularly if there is a massive collapse of the lung, the closed method practically assures as much reinflation of the lung as its expansibility will allow, and the antiseptic solution treatment will prevent pocketing and secondary infection, and will hasten recovery.

If the cavity is small and encapsulated, healing will occur by any method that provides and maintains adequate drainage until the cavity is obliterated.

Empyemas with bronchial fistulas are best suited for the closed method. If the fistula is small, irrigation and some degree of negative intrapleural tension can be maintained. If the fistula is large, open drainage is indicated, which also allows for cauterization or other treatment of the fistula.

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[15] Mozingo, A. E.: The Surgical Treatment of Empyema by a Closed Method, Am. J. M. Sc. **161**: 676 (May) 1921.

[16] Alexander, John: Air-Tight Intercostal Drainage of Acute Empyema, J. A. M. A. **92**: 1818-1821 (June 1) 1929.

[17] Hermannsdorfer, A.: Die Verflüssigung Pleuraempyeme durch Pepsin salzsäure als Hilfs mittel der Buelauschen Heberdrainage Behandlung, München. med. Wchnschr. **70**: 1219 (Sept. 28) 1923.

[18] Hart, Deryl: Empyema, Acute, Chronic and Tuberculous: Report of Fifty Cases Treated by Tidal Irrigation and Suction, J. A. M. A. **93**: 1724-1729 (Nov. 30) 1929.

By such individualization of treatment the mortality in the treatment of acute empyema has been very materially reduced. Muller [19] recently reported eighty-nine cases, 42 of them in infants, with a mortality of only 6.5 per cent.

CHRONIC EMPYEMA

An empyema is usually considered chronic when it shows no further progress toward healing, or when it has been present beyond a certain period of time, usually three months. Chronicity is usually due to inadequate treatment but may develop in spite of the best possible treatment. In 50 per cent of 310 cases under my observation,[20] chronicity was judged to have been due to inadequate drainage in the sense that it was not maintained until the cavity had become obliterated. It may be due to late primary drainage, to too early open drainage, resulting in extensive or complete pneumothorax collapse of the lung, to bronchial fistula, to foreign bodies and to fibrosis of the lung.

The aim of treatment of chronic empyema should be obliteration of the cavity by a method involving the least risk to the patient's life and minimal sacrifice of structure and function. This implies securing the greatest possible degree of reexpansion of the lung and the minimum degree of chest wall collapse.

In my experience it has been possible to secure a partial reexpansion of the lung, varying from 50 to 90 per cent, in more than two thirds of the cases without bronchial fistulas, by irrigation with surgical solution of chlorinated soda. Even if the cavity is not materially reduced there is always a marked improvement in the patient's general condition, as evidenced by gain in weight and strength often to a marked degree. The infection is greatly reduced in amount and virulence even if the cavity is not entirely sterilized. The magnitude of the operation is thus reduced, the patient's condition for operation improved and the operative field prepared.

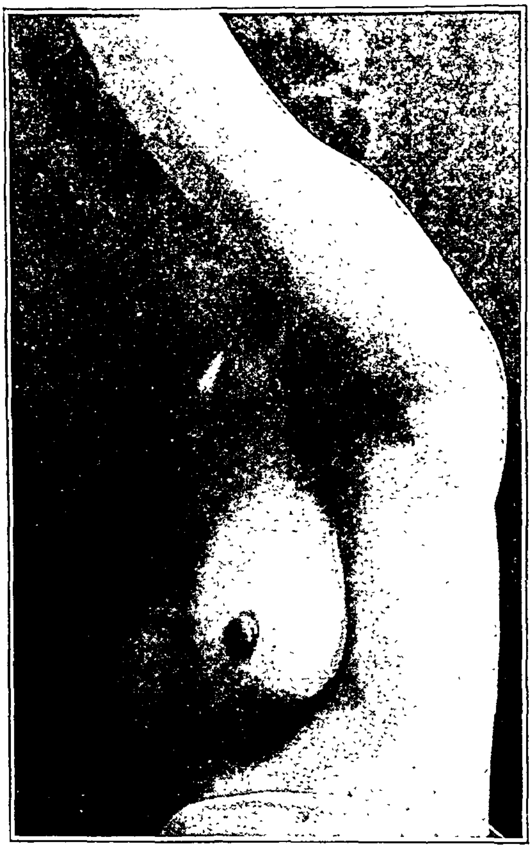

Fig. 5.—The scar of incision through which the anterolateral segments have been removed.

The technic is simple. If the patient presents himself with a sinus, the drainage tube is introduced through it, if possible. If not, it is introduced through a stab wound, as for the acute condition. The pus is aspirated and the cavity irrigated every two hours during the day.

The type of operation for the residual cavity depends on its size and shape. If less than 100 cc. capacity and flat, simple rib resection (Estlander) may be sufficient; but if the parietal pleura is thick and stiff, it should also be removed together with the intercostal bundles.

If the cavity is more or less globular, a decortication (Fowler Delorme) may release the lung, which will then more or less completely obliterate the cavity. However, in my experience decortication usually fails of its object in those cases in which irrigation with surgical solution of chlorinated soda has failed to bring about its reexpansion.

If the cavity has a capacity of several hundred cubic centimeters, it is usually desirable to do an operation in two or more stages, the ribs being resected at the first stage and the soft tissues at later sittings, with a muscle plastic operation after the method of Keller.[21] Skin plastic operations into large cavities overarched by the ribs often leave areas uncovered, which continue to suppurate indefinitely. I have recently done extensive plastic operations in several such cases of years' duration. If the cavity approaches 0.5 liter in capacity, a posterior extrapleural thoracoplasty is the operation of choice. It is performed in a clean field and can be subdivided into stages as made necessary by the condition of the patient. A plastic operation is then done for the residual cavity.

In case of total permanent collapse of the lung of long duration, a decortication usually fails. Extrapleural posterior thoracoplasty followed by anterolateral costectomy with final removal of the roof of the residual pocket, in my experience, will bring about the complete healing of any cavity, regardless of its size, including cavities with complete collapse of the lung.

Chronic empyema with bronchial fistulas are treated as other cases, according to the size of the cavity, but with additional measures directed to bring about healing of the fistula, provided it does not drain a pulmonary cavity, in which case it must be left open till the latter is cleared up. If a fistula is small, a few cauterizations with the electric coagulation current, or with the silver nitrate stick, together with the relaxation of the lung from the plastic procedure, will usually bring about healing. If it is 0.5 cm. or more in diameter, my practice has been to do a decortication of the lung around it, after which it may be closed by suture or a muscle plastic operation. If it is very large and lined with epithelium, this is first destroyed by the cautery, and the plastic operation is done after granulation tissue has developed. Calcium deposits on the pleura will prevent healing. If thin, they can be scraped away. If very thick and buried in the thickened pleura, they are removed piecemeal.

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[19] Muller, G. P.: Empyema, in Lewis: Surgery, Hagerstown, Md., W. F. Prior Company 6: 6, 1930.

[20] Hedblom, C. A.: Causative Factors and Treatment of Chronic Empyema, J. A. M. A. 81: 999-1005 (Sept. 22) 1923.

[21] Keller, W. L.: Treatment of Chronic Empyema Where the Recognized Surgical Procedures Have Failed to Produce Obliteration, Ann. Surg. 76: 549 (Nov.) 1922.

TUBERCULOUS EMPYEMA

An empyema is considered to be tuberculous if it develops primarily without a preceding acute infection. A history of preceding pleurisy with effusion should always suggest the possibility that a later empyema is tuberculous, even if it follows an acute infection.[22] If pyogenic organisms cannot be demonstrated in aspirated pus by smear or culture, it should be treated as of tuberculous origin. Occasionally tubercle bacilli can be demonstrated by smear, and often by culture or guinea-pig inoculation; but the latter procedures require too much time to be of much practical value from the standpoint of immediate treatment.

Differentiation of a sterile tuberculous empyema from one of pyogenic origin is of the first importance to treatment, in that a sterile tuberculous empyema should not be subjected to open drainage. To do so induces a secondary pyogenic infection, which endangers the patient's life and inevitably leads to chronicity. If the pleura is tuberculous it has little resistance to pyogenic infection and little healing power. In such cases only the most radical thoracoplastic procedures will bring about healing.

A sterile tuberculous empyema of idiopathic origin, and without clinical evidence of pulmonary tuberculosis, is treated on diametrically opposite principles to those governing treatment of a sterile tuberculous empyema with active pulmonary tuberculosis on the same side. In the first instance an effort is made to obliterate the cavity by securing reexpansion of the lung. In the latter, treatment is directed to keeping the tuberculous lung collapsed.

The treatment of a sterile tuberculous empyema of the idiopathic type is aspiration of the pus, filtered air being substituted in such an amount that the intrapleural pressure is about atmospheric. The procedure is repeated at intervals as the pus reaccumulates. The pneumothorax usually lessens the purulent secretions. Absorption of the air into the blood stream creates a less than atmospheric intrapleural tension, which tends to reexpand the lung. If pus continues to reaccumulate after from six months to a year of such treatment, and the lung shows no evidence of extensive reexpansion, a graded posterior extrapleural thoracoplasty is indicated. Prolonged absorption of pus usually results sooner or later in irreparable damage of the heart, of the kidneys, or both, and may produce extensive amyloidosis.

Sterile tuberculous empyema with associated active pulmonary tuberculosis is treated similarly to the idiopathic type, except that an attempt is made to prevent expansion of the diseased lung by keeping the pneumothorax pressure atmospheric or positive. If pus reaccumulates indefinitely it constitutes the same indication for thoracoplasty as in the case of the idiopathic type. The age, the condition of the patient, and the presence and the type of the pulmonary or other tuberculous process naturally may constitute contraindications to thoracoplasty.

An undrained tuberculous empyema may be secondarily infected by a bronchial fistula or by the lymph or blood stream. Presumptive evidence of an associated tuberculous pleuritis, in case pyogenic organisms are demonstrated in the smear or on culture, rests on the history of previous idiopathic pleurisy with effusion, or on the presence of an obvious tuberculous process in the lung or elsewhere. If the bacteria are few in number and the clinical symptoms mild, treatment should be the same as for the sterile tuberculous form. If there are large numbers of organisms, particularly streptococci, and if there are marked symptoms of sepsis, drainage must be instituted as in the pyogenic form, except that an erosive solution such as surgical solution of chlorinated soda or that of gentian violet must not be used if there is evidence of a pulmonary tuberculosis. If the pyogenic infection can be cleared up, the case is then treated as the sterile tuberculosis.

A tuberculous empyema secondarily infected by injudicious drainage may present the same presumptive evidence of tuberculosis as the undrained type. Its preliminary treatment is that of the chronic pyogenic type; its final treatment as outlined for the tuberculous. If there is no pulmonary tuberculosis it is desirable to bring about reexpansion of the lung; if there is pulmonary tuberculosis on the same side a thoracoplasty is usually indicated.

SUMMARY

1. Empyema may be of pyogenic or tuberculous origin. Differentiation depends essentially on examination of smear and culture for pyogenic organisms. Treatment differs radically.

2. The mortality rate and the incidence of chronicity in acute empyema depend not only on treatment but also on the type and virulence of infection, on the pathologic anatomy, age and general condition of the patient, and on the nature and gravity of the primary infection, of which it is almost always a complication. Comparative statistics of results of different methods of treatment that do not take these variable factors into account are inconclusive and misleading.

3. The fundamental principle of treatment is drainage, instituted early, by a method that will not embarrass respiration and circulation, and maintained until the cavity is obliterated, plus general supportive measures.

4. In the early stages of an acute empyema, before the lung has become adherent or the mediastinum has stiffened, the two pleural cavities function as one. Open drainage then lowers the respiratory function of the other lung. If the vital respiratory capacity is reduced by a coincident pneumonia and toxemia or other cause, or if the patient is an infant who normally always has a low vital capacity, such open drainage always adds to the respiratory load, often to a degree beyond the patient's compensatory reserve.

5. Closed drainage not only does not interfere with respiratory capacity but improves it. It is therefore the method of choice in all early, acute cases, in severely ill patients and in infants. Irrigation with antiseptic solutions makes possible the removal of all the pus without changing the intrathoracic pressure relationships and is bactericidal.

6. Ordinary rib resection and pus drainage is the alternative method, after the lung has become fixed by adhesions, and is the method of choice in cases with large bronchial fistulas.

7. Closed drainage and irrigation with surgical solution of chlorinated soda in chronic cases usually reduces the size of the cavity to a marked degree, improves the patient's condition and prepares the field for operation.

8. Residual empyema cavities may be obliterated by plastic operations varying according to their size, shape and position. Cavities involving the whole pleural cavity can be obliterated with minimal operative risk [illegible]terior and later extrapleural thora[illegible] by the removal of the thickened pleura over the residual cavity.

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22. Hedblom, C. A.: Diagnosis and Treatment of Tuberculous Empyema, Surg., Gynec. & Obst. 34: 445-465 (April) 1922.

9. Drainage is contraindicated in sterile tuberculous empyema. If without clinical evidence of associated pulmonary tuberculosis on the same side, air is substituted for the pus, and an attempt is made to bring about reexpansion of the lung. If there is associated active pulmonary tuberculosis, pneumothorax is continued, and, if pus continues to form, a plastic obliteration of the cavity is brought about, as for the nontuberculous type.

10. Undrained tuberculous empyema with a mild grade of pyogenic infection may be treated as though sterile tuberculosis. If there is a draining sinus, or if the pyogenic infection is virulent, treatment at first is by the closed method for the pyogenic infection followed by a complete thoracoplastic collapse and excision of parietal pleura over the residual cavity.

30 North Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. Ethan F. Butler, Elmira, N. Y.: My discussion, based on 323 cases in my own experience, is limited to the acute and chronic nontuberculous groups. Only by refined diagnosis can the most logical plan of operative attack be formulated. In acute empyema the mortality varies widely, dependent on the causal organism. The rate for the pneumococcus is approximately 10 per cent; for the streptococcus it is twice as high; for the mixed infections secondary to foci in other parts of the body, it is seven times as high. The age of the patient influences mortality figures; they are much higher during infancy and old age than during adolescence and early adult life. The lowered vital capacity of the infant, as Dr. Hedblom has pointed out, and the degenerative changes in the aged or relatively aged, determine this variation in mortality rates. Vital capacity is a good guide in deciding on the type of primary operative attack for acute empyema. If the vital capacity is diminished, closed drainage is indicated. As the vital capacity improves, open drainage may be substituted. I like open drainage, whenever it may be properly employed. Speed of recovery must be a secondary consideration in all cases of thoracic infection—a slow program is safer for the patient than a rapid one. Probably from fifteen to twenty different operations for empyema can be listed, but so far as the acute cases are concerned they can be grouped into closed or open methods. The general surgeon need not know them all, but he should be thoroughly familiar with at least one closed operation and one open operation. These patients require close daily attention and the surgeon must be willing to give this service. A value of 10 may be placed on the operating room procedures and a value of 90 on the day by day bedside care of the patient. In chronic cases this is particularly true.

Dr. John Alexander, Ann Arbor, Mich.: There are only four essential principles in the treatment of empyema: 1. No empyema should be drained until a culture or smear of a sample of aspirated pus shows pyogenic organisms. If none is present the empyema is probably a pure tuberculous one whose drainage, as Dr. Hedblom said, would inevitably lead to grave mixed infection. This rule should be adhered to, no matter how high the temperature and no matter how ugly the appearance of the pus. 2. No acute empyema should be drained by a tube that is not air tight with the thoracic wall, until one has reasonable assurance that the empyema is encapsulated at its periphery by firm adhesions, which take from one to three weeks to form. Until encapsulation has occurred, the pus should be aspirated as often as symptoms of pressure or toxicity may indicate. Drainage by a certainly air tight technic may advantageously be substituted for repeated aspirations. 3. Two tubes should invariably be used in either the open or the closed drainage of empyemas without bronchopleural fistulas. One of the two tubes should be wide enough to carry off any clots that the pus may contain; the second tube may be narrow and is used for the introduction of whatever antiseptic irrigating solution may be chosen. The use of one tube for both drainage and introduction of antiseptic solution has the disadvantage that every drop of solution introduced causes distention of the empyemic cavity, which tears the fine adhesions that pull out the lung and obliterate the cavity. Dr. Hedblom's one-tube system has not this objection because he keeps the tube clamped and periodically instils a lesser amount of solution than he has just evacuated. I myself prefer to maintain constant air tight siphonage drainage of acute cases. 4. The two tubes of proper size and length should be kept in place at the very bottom of the empyemic cavity until there is evidence that it has become obliterated. Their removal just because the temperature has become normal and the secretion scanty too often results in a chronic empyema. Were these four principles applied as the only important ones for the average patient and minor considerations and fancy types of drainage forgotten, the end-results of treatment would be immeasurably improved.

Dr. J. W. Barson, Joplin, Mo.: Here is a case of a boy, aged 17, who, after playing football, developed a pleurisy with effusion. Unhappily he had been treated by an osteopath for about seven or eight weeks before. On each inspiration a point could be seen where the pus was trying to make its way through the chest wall. There was a bronchial fistula. The heart was pushed over to the right side, and when a rib was resected about 3 quarts of extremely foul pus was evacuated. The empyema sac was drained for about three months, and it seemed to be almost obliterated, but not quite. The boy was then allowed to go West in the hope that within a couple of years he would regain his health, but so much lung tissue had been destroyed that the cavity in the pleural sac persisted and he came back with a large bronchiectasis on each side. This is a thing that has not been mentioned. There is danger that, instead of the lung expanding, bronchiectasis may develop and that is a serious matter. This boy then required avulsion of the phrenic nerve and two or three operations on the ribs in order to collapse the lung. The point I wish to make is that too long neglect of a proper resection of ribs when there is a persistent pleural cavity may, by negative pressure, cause the bronchi to dilate and thus produce a bronchiectasis that is more serious than the primary disease.

Dr. J. A. Danna, New Orleans: In a paper in The Journal, May 2, I reviewed thirty-five cases of empyema treated by aspiration and air replacement. Dr. Hedblom dismisses the subject of aspiration rather lightly. I think that a series of some thirty-nine or forty unselected cases in which the causal organism was of every possible variety and in which there were only two deaths, neither of which could be attributed to the method, should not be passed over quite so lightly. The treatment consists of aspirating the pus with a 50 or 100 cc. syringe, and as each syringeful of pus is removed, an equal quantity of air is injected, the object being not to interfere with the architecture of the cavity, as it were, and not to traumatize it. By replacing the fluid with air, one is able to remove every bit of fluid. In cases in which the fibrinous exudate prevents the needle from working, the same effect will be produced by making a small stab wound, placing open forceps in the wound, and having the patient forcibly inspire and expire, with each expiration forcing fluid out, with each inspiration forcing air in. If fibrinous masses block the opening, with the same forceps one should pull them out until the cavity is entirely empty. Some patients have been cured with one aspiration or treatment of this kind. By the way, when these little stab wounds are made they heal right up and have to be reopened in order that the treatment may be renewed. Others have required ten or fifteen or twenty treatments, the difference being as to whether the empyema cavity is still being fed by the focus of infection. If this method is tried before open or closed drainage is begun in patients who are very sick, some of them will recover without other treatment.

Dr. Carl A. Hedblom, Chicago: Dr. Butler has rightly emphasized the importance of the after-care of patients treated for acute empyema by the closed method. Adequate drainage by the closed method in my experience necessitates washing the cavity until the irrigating solution returns clear every two hours during the waking hours; e. g., from about 6 a. m. to about 10 p. m. If the patient is highly toxic, my practice has been to shorten the interval and to irrigate also once or twice during the night. Properly carried out, it does not tire or irritate the patient. Often he will not be aroused from sleep. If, for any reason, this routine cannot be carried out adequately it will be better for the patient to have wide open gravity drainage as soon as the critical stage of his illness is past. I cannot quite agree with Dr. Alexander that two tubes are necessary. In fact, in my experience a secondary tube has never been necessary. If pus is aspirated first, and if the amount of irrigating solution allowed to flow in is always less than the amount of pus removed, and if air is not admitted, there can be no dilating effect on the cavity. The result, in fact, is to the contrary. In my paper I have referred to Dr. Danna's method. Aspirating the pus and replacement with air is, of course, a recognized method of treatment of sterile tuberculous empyema. Just how effective this method will prove to be in dealing with pyogenic empyema, experience will have to determine. Dr. Danna's results certainly have been good. The method may prove of great value in empyema due to infection of low virulence.

ONYCHOLYSIS

AN INDUSTRIAL DERMATOSIS *

H. J. TEMPLETON, M.D.
OAKLAND, CALIF.

Very little has been written in regard to separation of the fingernails from the nailbeds. Practically nothing has been recorded in regard to such a condition, onycholysis, being related to the industries. Since 1928, I have been called on to determine the industrial status of five cases in which patients claimed that their fingernails had separated in whole or part from the nail beds as a result of their particular occupations. An investigation disclosed that their allegations were correct. The cases all became compensable and, hence, of interest to industrial physicians and insurance companies.

A thorough search of all the available literature failed to disclose any similar cases. Any claim to priority of description of such cases was shattered, however, when in a personal interview Oppenheim told me that he had reported several similar cases in 1910. Although there are some dissimilar features in his cases, there would seem to be no question but that they belong in the same category as mine.

REVIEW OF THE LITERATURE

Oppenheim's cases were all presented before the Vienna Dermatologic Society during November, 1909.[1]

Case 1.—A woman, aged 50, a housewife, with no history of dystrophies of the nails in her family, first noted a separation of her fingernail eight or nine years previously. She believed that her trouble was caused by doing laundry work. All her nails, with the exception of that of the left thumb, showed a separation of the nail from the nailbed in various degrees (fig. 1). This separation was limited by a semilunar line with its convexity proximal. The separation was an extension proximally of the normal separation between the nail and the end of the finger. The nail itself was unchanged in color and luster. The nail lunula and the surrounding skin were normal and the skin of the nailbed was smooth. The separation had never reached the lunula. The toenails were normal.

Case 2.—A woman, aged 35, a housewife, noticed a loosening of her fingernails five years previously, following considerable laundry work. This separation occurred without producing any symptoms. The nails of the second, fourth and fifth right fingers and of the third left finger were involved. The changes were exactly the same as seen in case 1.

Case 3.—A woman, aged 23, a housewife, observed an asymptomatic separation of her fingernails one year previously, which she attributed to laundry work. All the nails of her right hand and those of the third and fourth left fingers were involved. The changes in the nails were the same as in the other two patients.

Oppenheim's patients were all women domestically engaged in laundry work. Their afflictions began gradually without subjective symptoms and lasted for years. Their toenails were all normal.

The author felt that the separation was brought about by laundering with hot water and soda, although the question remained open whether the chemical or the mechanical insults were to be given the greater rôle or whether they work in conjunction. He showed that trauma was applied to the free ends of the nails by their part in rubbing the clothes over the washboard and in wringing the clothes dry. Those fingers were most affected which suffered the most trauma. The chemical factor of the water and soda macerating the tissues under the nails would render them more liable to separation by the mechanical factor.

Case 4.[2]—A woman stated that she used a washing powder called "Persil" for laundering. About one week later small vesicles appeared under the nails, which loosened to the extent shown in figure 2. Four years later the nails had regrown, with the exception of the one on the third finger of the right hand.

AUTHOR'S CASES

Case 1.—Mrs. Anna J., aged 34, began washing paste from labeled catsup bottles, May 14, 1928. She had not been engaged in this type of work previously. It necessitated intermittent submerging of her hands in water throughout the day. On the second day she noticed blue black spots appearing under the nails of several of her fingers (fig. 3). These dark areas spread rapidly and in two days had involved nearly the whole of the nailbeds of all her nails. This process was remarkably free from pain. May 18, four days after beginning bottle washing, she was forced to lie off and consult the plant physician. He found all her nails loosened from the nailbeds. There was a slight serosanguineous discharge from under the nails. There was no evidence of paronychia, nor was there any pus under the nails. The nailbeds were not acutely inflamed. Within three weeks the nails had entirely separated from the

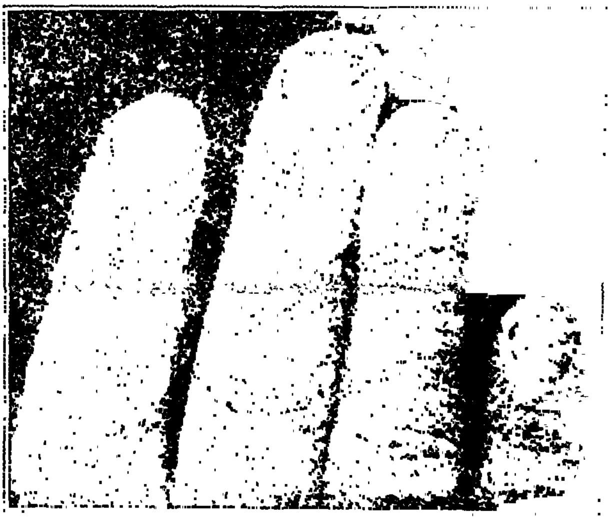

Fig. 1.—Oppenheim's case of onycholysis in a washerwoman.

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* Read before the Section on Dermatology and Syphilology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Oppenheim, M.: Ueber eine eigene Art der Nägelablösung bei Wäscherinnen, Wien. Arb. d. Geb. d. soz. Med., Vienna & Leipzig, 1910.

[2] An unpublished case, reported by courtesy of Professor Arzt and Docent Fuhs and Matras of Vienna.

nailbeds except at the lunula. Some of the nails came off with the dressings. By June 23, the nails had begun to regrow. June 27, it was felt that the patient could resume light work.

There was no history of familial nail dystrophies. No illness or drug ingestion preceded the onset of her trouble. There was no history of previous dermatoses nor was there any other cutaneous abnormality present. A general examination showed her to be apparently in good health. There was no evidence of thyroid abnormality. Scrapings from the toenails were negative for fungi. A Wassermann test was not obtainable.

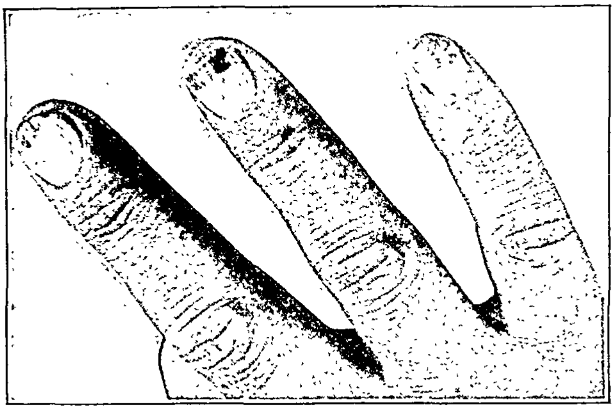

Fig. 2.—Onycholysis in a washerwoman using "Persil," a washing compound. Courtesy of the Klinik Arzt.

The diagnosis was onycholysis, industrial in origin. The insurance company accepted liability and compensated her for thirty-nine days' loss of time.

Case 2.—Miss Eva F., aged 18, began the same type of bottle washing two weeks before consulting me. Her hands were immersed in water the greater part of her eight hour day. She had not done this type of work previously. Two days after beginning work she noticed "black spots" appearing close to the free edge of the nails. These black areas appeared to be under the nails. They rapidly enlarged and spread toward the root of the nail. As they spread, the nails separated from the nailbeds. Within a week the nails were loose except at the proximal portions. All the nails of the right hand and those of the third, fourth and fifth left fingers were involved. The process was free from pain. There was no discharge of pus, serum or blood from beneath the nails (fig. 4).

There was no history of nail dystrophies in her family, nor of recent illness, drug ingestion or previous dermatoses.

Examination disclosed that the patient was perfectly healthy. There was no evidence of thyroid dysfunction or of xeroderma. There was no other cutaneous abnormality. Her toenails were normal. Scrapings from her fingernails were negative microscopically and culturally for fungi.

The girl was removed from bottle washing. When seen four and a half months later the nails had grown again in a normal manner. The diagnosis was onycholysis, industrial in origin. The insurance company accepted liability and compensated her for three months of disability.

Case 3.—Anna B., aged 21, began the same type of bottle washing one month before consulting me. She had not worked at this type of work previously. Two days after beginning work she noticed light brown spots under the nails of her fourth and fifth right fingers (fig. 5). These have gradually increased in size up to about 5 mm. in diameter. No symptoms have been present except slight pain when the fingers have been immersed in water. The other nails have not been involved. There was no separation of the nails from the nailbeds, nor was there paronychia. Her history revealed no familial nail dystrophies. She had had no skin troubles previously. No illness or injury to the nails preceded the onset. She used no nail polish. She had taken occasional doses of a proprietary phenolphthalein laxative.

A complete physical examination was essentially negative. Specifically, there was no evidence of thyroid abnormality, no acrocyanosis, no cutaneous lesions elsewhere and no abnormalities of the toenails. Scrapings from the fingernails were negative for fungi. The diagnosis was impending onycholysis, industrial in origin. The patient was taken off of bottle washing and no disability occurred.

Case 4.—Mrs. Mollie S., aged 22, noticed slight tenderness of her fingertips the first evening after beginning the washing of catsup bottles, which type of work she had not done previously. The next day black areas appeared under the distal portions of all the fingernails except that of the first left finger. Within a few days the nails had separated from the nailbeds wherever the blackening had occurred (fig. 6). On most nails this was limited to their distal halves. The process stopped here and the nails slowly grew and became attached normally to the nailbed. At no time was there any evidence of inflammation such as pain, discharge or paronychia.

The patient was healthy. Her family and personal histories were of no interest. A complete physical examination was negative. Her toenails were normal. There were no other cutaneous abnormalities. Scrapings from her fingernails were negative for fungi. The diagnosis was onycholysis, industrial in origin. The insurance company accepted liability and compensated her for ten weeks' loss of time.

Case 5.—Miss Alice H. was referred to me four months after her nails had become loosened from the nailbeds following the same type of work as in the preceding cases. The old nails had come off of the second, third and fourth right fingers. The first and fifth right fingernails showed about 90 per cent regrowth. The third and fourth left finger nails were only slightly loosened at their free edges.

Like my other patients, she stated that this process had begun acutely within forty-eight hours after she first began to wash catsup bottles. Black areas had appeared under the nails and the nails had rapidly separated from the nailbeds at these locations.

There had been no cutaneous or ungual dystrophies in her family. Her personal history was negative except for nystagmus (due to birth injury?) and symptoms suggestive of hypothyroidism. Her toenails were normal, as was her skin. Scrapings from the involved nails showed no fungi.

When seen two years later all her nails were perfectly normal. She said that about six months' time elapsed from the injury to perfect restitution of her nails.

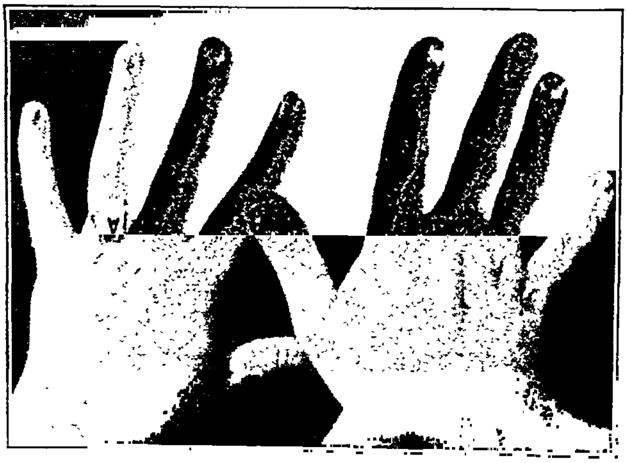

Fig. 3.—Onycholysis in author's first patient.

The diagnosis was oncholysis, industrial in origin. The insurance company accepted liability and compensated her for loss of time.

INVESTIGATIONS

As all these patients incurred their trouble while working at one particular plant, all doing the same type of work, an investigation of working conditions was made in cooperation with the employers and the insurance company.

It was found that the sanitary and working conditions of the plant were of the highest order. All the trouble occurred in healthy young women who were engaged in washing paste off of catsup bottles which had just been labeled. The catsup bottles were first washed, then filled with catsup and capped. The catsup was then washed off and the bottles were dried. Labels were then pasted on. All the work up to this point was done by groups of girls other than the bottle washers. None of these groups suffered from nail disorders. The bottles, covered with paste, were delivered to the bottle washers on a conveyor and were dumped into wooden wash tubs filled with lukewarm city water to which no chemicals had been added. The bottle washers wore no gloves and used no soap. They were provided with sponges with which they removed the paste. Their hands remained submerged in water a large part of the time.

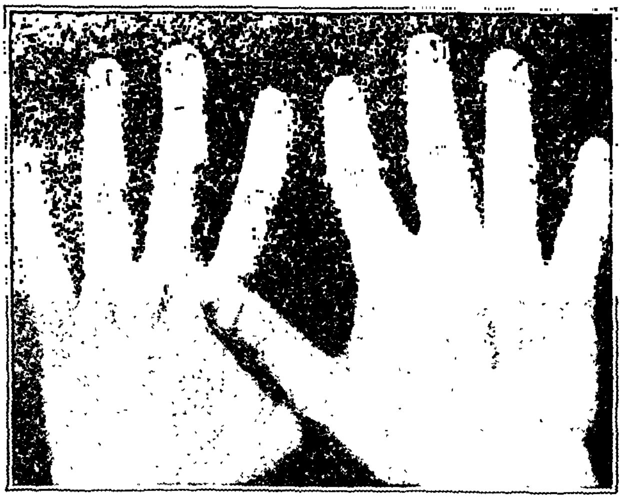

Fig. 4.—Onycholysis in author's second patient.

Possible causative factors which we considered were as follows:

1. Could the catsup have been at fault? This possibility would seem to be eliminated by the freedom of the groups who came in contact with the catsup and by the fact that it was thoroughly washed off the bottles before they were sent to the bottle washers.

2. Could the paste be blamed? The group of girls whose hands were in the paste all day did not suffer from nail disorders.

3. Could the chemicals on the labels be the cause? The label manufacturer informed us that no similar cases had occurred in his plant.

4. Could the chemicals in the water be the cause? No soaps, lyes or chemicals were added to the water. Only 0.06 part per million of chlorine was added to the water supply at its source. As this would have been neutralized in the city mains it could be of no significance.

5. Was there irritation from the sponges? We were unable to secure much information in regard to sponges, but as the ones provided were old and frequently washed we did not believe that they could be at fault.

6. Could maceration of the tissues which bind the nail to the nailbed occur by long continued immersion of the hands in water? This is self explanatory and, I believe, a very important factor.

7. Was mechanical trauma to the free ends of the nail to blame? We observed some of the girls picking at resistant specks of dried paste on the bottles. I think that this factor is one of several, operative in producing the disorder.

8. Is there a personal factor predisposing to ease of separation of the nails? No evidence could be found in our examinations of the afflicted girls to support such an hypothesis. Yet the fact that only a small percentage of new employees were involved speaks in favor of it. If a new employee tolerated the work and did not show loosening of the nails within forty-eight hours, she apparently was capable of washing bottles indefinitely.

SUMMARY

New employees, apparently healthy, developed black spots under their fingernails within forty-eight hours after beginning work washing paste from labeled bottles. Within a few days the nails loosened from the nailbeds at these areas. The process was without symptoms. The nails regrew in from four to six months. Investigations revealed no specific industrial irritants at fault. I believe that the disorder was precipitated by maceration of the tissues by prolonged immersion in water plus, possibly, the mechanical insult to the tips of the fingernails from picking at resistant pieces of paste.

But back of all of this, in my opinion, was some personal factor which made the nails separate from the nailbeds more easily than would those of normal individuals.

COMMENT

Although my cases and those of Oppenheim belong to essentially the same group, it can be seen that there are some differences. My patients presented an acute fulminating separation of the nails, while the process in Oppenheim's patients was essentially a chronic one. This difference might be explained by my patients' immediate removal from the offending work. Oppenheim made no mention of the sudden appearance of blackened areas under the nails, which was so characteristic in my cases.

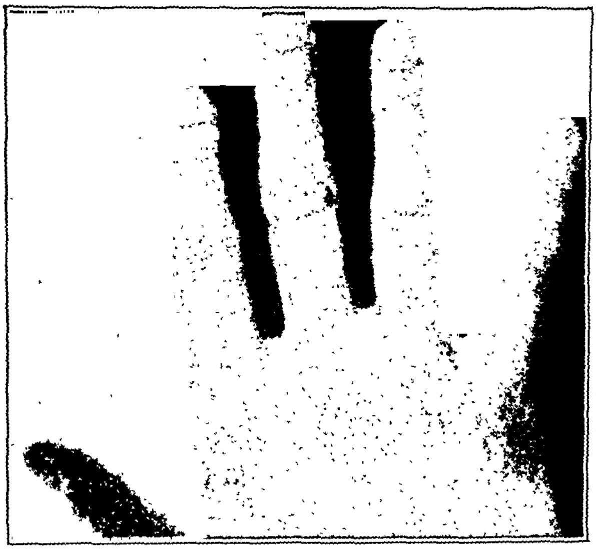

Fig. 5.—Earliest stage of onycholysis, as seen in author's third patient. Only a darkened area can be seen under the fifth nail.

Heller[3] described ten cases of onycholysis in which the etiology was indefinite. He believed that external irritants, such as soda did not play a causative rôle. His cases were unrelated to the industries and differed clinically from mine. He made no mention of sudden onset with darkening of the nailbed.

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[3] Heller, Julius: Die Krankheiten der Nagel, Berlin, Julius Springer, 1927, p. 113.

A search of the available literature revealed no other records of onycholysis of this type.

R. Prosser White[4] stated that he had not observed any similar cases and that in conversation with his British colleagues he had been unable to find any record of such. One of the leading authorities on industrial medicine, Dr. E. R. Hayhurst,[4] stated that the condition was unknown to him.

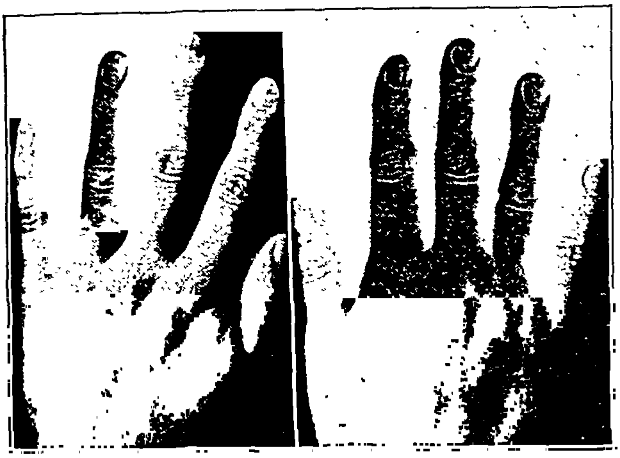

Fig. 6.—Onycholysis in author's fourth patient.

Dr. E. E. Taylor,[4] physician in charge of the eastern plant of the company in which the cases that I have reported occurred, stated that they had had two or three similar cases in a period of twenty-two years. These cases were not reported.

CONCLUSION

1. Five cases of onycholysis are reported.
2. As they were industrial in origin and compensable, they should be of interest to industrial physicians and insurance companies.
3. Investigations as to their etiology are reviewed. Some personal predisposition, maceration of the tissues and mechanical trauma applied to the nails probably act concurrently to produce the disorder.

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ABSTRACT OF DISCUSSION

Dr. Laurence R. Taussig, San Francisco: In my practice I have seen no instances of a separation of the nails such as Templeton has described, nor have I seen it mentioned in the American literature. In looking over the indexes of the *Dermatologische Zeitschrift* for the past four years, I encountered three cases presented at dermatologic societies under the name of onycholysis semilunaris. Falkenstein presented a woman, at the February, 1927, meeting of the Cologne Dermatologic Society, in whom the condition was considered to be due to trauma from manicuring. The same physician presented another woman, at the October, 1928, meeting of the same society, who was a cook's helper, and the discussers considered the condition occupational in origin, although nervous influences were looked on as a possible underlying factor. The third case was presented by Carlson at the Rhine Westphalia Dermatologic Society, in October, 1929, and details of occupation were not given. The condition had persisted for four years in spite of various forms of therapy. I am inclined to believe that the disease is purely mechanical in origin, but it is obvious that some other factor plays a part in determining a hypersensitivity which may possibly be neurogenic in character.

Dr. M. J. Strauss, New Haven: Dr. Lane and I have at present a similar case under observation. I think it was in 1921 that Martin Friedman in reporting some cases reviewed the literature up to that time and the only cases which had been considered as due to industrial hazards were those of Oppenheim, of which we have just seen the pictures. The case we are studying is more marked than those presented today. The patient is a man, aged 20, and the condition began while he was a predental student and earning his living by selling books. There is no history of constant immersion in water or of constant mechanical irritation of the nails and up to the present time we have not been able to find the cause of the condition. The condition is of two years' duration, and in spite of the fact that he has done no work at all for more than six months it has become more marked. This patient's toenails are also affected, which makes it seem improbable that in his case it is an occupational disease. I hesitate to use the term trophic. That really is an admission of ignorance, but it may be significant that the onset was simultaneous with a typical alopecia areata. I wish to call attention to another type of separation of the nails which is slightly different. It is the type in which the entire nail falls out spontaneously. Several etiologic factors have been suggested for this. It has been reported as occurring after scarlet fever, after severe psychic shock, in tabes and after arsenic poisoning.

Dr. Howard J. Parkhurst, Toledo, Ohio: Within the past two weeks I have observed a case of three years' duration in a middle aged woman, who has been employed for that length of time in washing dishes in a cafeteria. For treatment I simply suggested that she wear rubber gloves.

Dr. Marion B. Sulzberger, New York: I think there is no doubt that this condition is more frequent than is supposed. If one looks for it, I am sure quite a number of cases will be reported in the future. The question arises as to how one will divide these cases. Some undoubtedly are trophic; some are due to trauma, some purely to chemical causes, and some to a combination of factors. In Dr. Templeton's case I think the history is suggestive of a combination of trauma and some other cause. In considering Dr. Oppenheim's cases, one is struck by the fact that one was due to Persil, which is known to be an irritant causing many skin eruptions. The interesting point regarding trauma and skin sensitization was brought out well by the work of Naegeli, who found that skin tests were often positive on traumatized skin, whereas they were negative on other not previously traumatized areas.

Dr. C. Guy Lane, Boston: I was reminded by Dr. Templeton's case of a case I saw some years ago in a dentist who had dermatitis of the nails. I do not know whether it was exactly the same type of case, but the slight maceration and separation of the nail was due to procaine hydrochloride sensitization.

Dr. Karl G. Zwick, Cincinnati: During the war I was engaged in a chemical factory where they manufactured quite a number of pharmaceutic preparations, which were put up in ampules, and I noticed that many of the girls who were engaged in cleaning these ampules of the paste would come in contact with some of the chemicals that were used in washing the ampules. The ampules were put through a bath of sodium hydroxide, then water, and finally distilled water to clean them. It seemed that quite a number of the girls would not be affected, whereas quite a number of other girls, doing the same type of work, would. This would bear out the thought that a general predisposition would be a factor in the production of the trouble. We used to term them onychomalacia, although I think the term suggested by Dr. Templeton is better.

Blood Platelets.—The number of blood platelets in healthy animals is fairly constant, though daily and even hourly fluctuations of considerable volume occur. In general, the level is not as constant as that of erythrocytes but is more constant than that of leukocytes. Spontaneous variations, when they occur, can usually be explained on the basis of infections or of alterations of the environment, especially changes in light. In experimental procedures devised to study the problems of the origin and the function of the blood platelets, a great variety of agents have been employed for altering the platelet content of the blood. —Steiner, P. E., and Gunn, F. D.: The Response of Blood Platelets to External Stimuli—Ultraviolet Light, Iodine and Coal Tar, *Arch. Path.* **11**:241 (Feb.) 1931.

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[4] Personal communication to the author.

THE BLOOD PICTURE IN SIX HUNDRED CASES OF GOITER

ESPECIAL REFERENCE TO THE EFFECT OF IODINE AND THYROIDECTOMY *

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In 1924 I began a study of the blood in toxic goiter to ascertain, if possible, whether or not the data would be of any value in determining the prognosis of the disease. European authorities, notably Kocher,[1] and his American disciple, Crotti,[2] have laid considerable emphasis on the importance of the blood picture in hyperthyroidism. Little study of this subject has been made in our own country, with the exception of an important contribution by W. A. Plummer [3] in 1918, and general observations by Hertzler [4] and a few others. Plummer's report was made before the metabolic rate had come into general use. Hertzler states, in conclusion, that the observations to date are so variable that a further study is much desired. So far as I have been able to ascertain there has been no report of the coordinated blood picture and metabolic studies, nor any of the effect of iodine on the former.

The purpose of this study is to show:

1. Whether or not the blood picture in hyperthyroidism varies from that in the normal person.
2. Whether the differential blood count is or is not of diagnostic and prognostic significance.
3. Whether there is or is not a definite relationship between the blood picture and the metabolic rate.
4. Whether a secondary anemia is typical or atypical of hyperthyroidism.
5. A change or the absence of one in the blood picture through the use of iodine.
6. Whether or not the blood picture in hyperthyroidism is of any practical clinical importance.

Although Miscowicz and Ciuffini in 1904 found a lymphocytosis in the blood of patients with hyperthyroidism, and Caro in 1907 reported similar observations in one case, it was Kocher who in 1908 gave these observations their true significance and considered them as the result of the disease. Since then a number of authors have reported the results of their investigations, upholding these conclusions.

Crile [5] believes that the most characteristic change in the blood picture in hyperthyroidism is the presence of a moderate degree of lymphocytosis.

Crotti states that the chief characteristics of the blood in patients with hyperthyroidism are leukopenia, hyperlymphocytosis and hypopolynucleosis.

Hertzler remarks that the lymphocytes generally are from 25 to 45 per cent but may reach 50 per cent or more. In many of the most severe cases, however, the lymphocytes are actually reduced.

According to Kocher, the differential blood count should be normal in simple goiter, while exophthalmic goiter should be characterized by a more or less marked lymphocytosis together with a general leukopenia in two thirds of the cases. The ingestion of the thyroid products should produce in man and animals a relative, or more often an absolute, increase of lymphocytes and a decrease in the polymorphonuclears.

De Quervain,[6] on the other hand, from a study of 250 cases found practically no change in the lymphocyte count in simple and toxic goiter. He found that the average percentage of polymorphonuclears is 64 in simple goiter, 61 in hyperthyroidism and 65 in hypothyroidism. The lymphocytes range about 28 per cent in simple goiter, 30 per cent in hyperthyroidism and 29 per cent in hypothyroidism. He adds that his results tally with those of Muller, Bielajew, Bauer, Lampe and others with regard to the nonspecificity of the leukocyte formula for the different conditions of the thyroid gland.

Kocher emphasized the presence of a leukopenia and based his conclusion on 106 cases in which there was an average count of about 5,000 leukocytes.

Plummer's series, based on a study of the blood counts in 578 patients with exophthalmic goiter, showed an average leukocyte count of 6,973.5. Plummer found that there is a relative and an absolute mononucleosis and a decrease in the percentage in the polymorphonuclear neutrophils, thereby confirming Kocher's observations. When a leukopenia is present the decrease is in the number of the neutrophils. He found that in the mortality statistics the relative lymphocyte count is a few points under the average but not sufficiently to be of value in prognosis. He believes that the differential count is of limited value in diagnosis. Except for a polymorphonuclear leukocytosis immediately following operation and during tonsillitis and other acute infections, he was unable to determine any factor which influences the characteristic blood picture.

On the contrary, Crotti believes that the differential blood count is of great help in deciding whether one has to deal with a thyrotoxic condition or not, and the same is true of the prognosis. He believes that a marked leukopenia, a high lymphocytosis and a marked hypopolynucleosis will show that the case is a serious one. A high percentage of lymphocytes without or with only a moderate leukopenia is of good prognostic value, whereas a marked leukopenia with a low percentage of lymphocytes must be regarded as a bad prognosis.

TABLE 1.—*Average Blood Count in Six Hundred Cases of Goiter*

	Colloid Goiter	Nontoxic Adenoma	Toxic Adenoma	Exophthalmic Goiter
Hemoglobin	75	79	78	78
Erythrocytes	4,200,000	4,190,000	4,960,000	4,790,000
Leukocytes	9,543	8,956	8,463	8,412
Polymorphonuclears	64	60	60	59
Lymphocytes	30	33	35	35
Transitionals	4	5	4	4
Eosinophils	2	2	1	2

From these conclusions it is evident that a wide divergence of opinion exists with regard to the differential blood count in goiter and also with regard to its diagnostic and prognostic importance.

In this series of 600 goiter cases, blood studies were made on the following types of goiter: colloid goiter, 100 cases; nontoxic adenoma, 100 cases; toxic adenoma, 200 cases; exophthalmic goiter, 200 cases.

The average blood count for this entire group is shown in table 1.

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* From the Jackson Clinic.

[1] Kocher, T., quoted by Crotti (footnote 2).

[2] Crotti, André: The Thyroid and Thymus, Philadelphia, Lea & Febiger, 1922.

[3] Plummer, W. A.: The Blood Picture in Exophthalmic Goiter, Collected Papers of the Mayo Clinic **10:** 359-363, 1918.

[4] Hertzler, Arthur: Diseases of the Thyroid Gland, St. Louis, C. V. Mosby Company, 1922.

[5] Cleveland Clinic: The Thyroid Gland: Clinics of George W. Crile and Associates, Philadelphia, W. B. Saunders Company, 1922.

[6] de Quervain, F.: Goitre, New York, William Wood & Co., 1924, pp. 80-81.

It is at once apparent that the differential blood count is of no clinical significance in simple nontoxic goiter. It is likewise evident that in exophthalmic goiter there is only a slight increase in the lymphocytes and a decrease in the polymorphonuclears. Considering the normal average leukocyte count as from 7,000 to 8,000, it is apparent in this study that a leukopenia does not occur in hyperthyroidism. These figures do not corroborate most of the reports in the literature.

Table 2.—*Blood Count in Patients with Highest and with Lowest Metabolic Rates*

Exophthalmic Goiter	Highest	Lowest
Basal metabolic rate	+64	+28
Leukocytes	7,415	9,540
Polymorphonuclears	60	61
Lymphocytes	35	34
Toxic Adenoma		
Basal metabolic rate	+46	+15
Leukocytes	8,919	8,817
Polymorphonuclears	61	59
Lymphocytes	33	37

It might be well to diverge and call attention to the fact that, from this study, anemia is not a characteristic observation in hyperthyroidism. The impression has been made by several writers that anemia is a frequent sequela.

Table 3.—*Loss of Weight in Patients with Exophthalmic Goiter*

Exophthalmic Goiter	Average Weight Loss 10 Pounds (4.5 Kg.)	Average Weight Loss 30 Pounds (13.6 Kg.)
Leukocytes	7,261	8,089
Polymorphonuclears	62	65
Lymphocytes	33	31

Plummer ascertained by a study of the differential blood count of fifty-four patients who died of exophthalmic goiter that neither the leukocyte count nor the degree of mononucleosis is dependent on the severity of the symptoms and that they cannot be used as a guide in prognosis. Since these observations are in marked contrast to those of Crotti, it seems of interest to study this point. If the lymphocytes are increased in proportion to the severity of the disease, one would expect a similar increase in the metabolic rate in the majority of cases.

Table 4.—*Effect of Thyroid Extract on Blood Count in Colloid Goiter*

Colloid Goiter	Before Thyroid Extract	After Thyroid Extract
Leukocytes	10,116	8,971
Polymorphonuclears	65	63
Lymphocytes	28	32

Table 5.—*Effect of Iodine on Blood Count in Toxic Adenoma*

Toxic Adenoma	Before Iodine	After Iodine
Leukocytes	8,084	9,240
Polymorphonuclears	58	60
Lymphocytes	38	34

A group of forty patients having the highest and the lowest metabolic rates were found to have an average blood count, as shown in table 2.

From these studies it is apparent that the blood count does not vary according to the metabolic rate. The lymphocytes are not increased when the rate is elevated, or decreased when it is lowered.

While the degree of hyperthyroidism may not always be accurately gaged by the metabolic rate, particularly in toxic adenoma, yet the amount of weight loss often indicates the severity of the disease. Consequently, those suffering the greatest weight loss might be expected to show the highest lymphocyte count.

From the figures shown in table 3, my conclusions are the same as Plummer's, that neither the leukocyte count nor the degree of mononucleosis is dependent on the severity of the symptoms and that they cannot be used as a guide in prognosis.

Kocher felt that the ingestion of thyroid products should produce a relative or an absolute increase of lymphocytes and a decrease of polymorphonuclears. Consequently, the differential blood count was determined in a group of colloid goiters in children before and after the daily administration of 2 grains (0.13 Gm.) of thyroid extract (table 4).

Table 6.—*Blood Picture in Exophthalmic Goiter under Various Conditions*

Exophthalmic Goiter	Before Iodine	After Iodine	After Operation
Basal metabolic rate	+46	+34	+6
Leukocytes	7,540	8,146	9,071
Polymorphonuclears	61	60	65
Lymphocytes	32	34	20

A unanimous opinion does not exist with regard to the effect of iodine in toxic adenoma. In our experience at the Jackson Clinic, about 40 per cent of patients with toxic adenoma show improvement after administration of iodine. The studies summarized in table 5 show that there is no appreciable change in the blood count.

Table 7.—*Influence of Sex on Blood Picture in Exophthalmic Goiter*

Exophthalmic Goiter	Male	Female
Leukocytes	8,829	8,436
Polymorphonuclears	61	60
Lymphocytes	34	35

It is evident that iodine administration in exophthalmic goiter results in a period of marked temporary remission of the clinical symptoms accompanied by a fall in the metabolic rate. If the conclusions of Kocher and Crotti are correct, one would expect a proportionate decrease in the lymphocyte count. Our observations are to the contrary.

Table 8.—*Influence of Age on Blood Picture in Exophthalmic Goiter*

	15 to 25 Years	50 to 75 Years
Leukocytes	8,953	7,620
Polymorphonuclears	53	62
Lymphocytes	31	35

Finally, if the lymphocyte count falls as the severity of the disease lessens, one would expect the same to occur after thyroidectomy. Table 6 gives a comparison of the blood picture in exophthalmic goiter before operation and before the use of iodine, after iodine and after operation. While iodine is shown to have no effect on the blood picture, thyroidectomy does cause a marked reduction in the lymphocytes and a proportionate increase in the polymorphonuclear count.

The influence of sex also was considered (table 7). The influence of age which was also taken into consideration is shown in table 8.

CONCLUSIONS

In a study of 600 cases of goiter, the following conclusions are drawn:

1. The blood picture in hyperthyroidism does not vary essentially from that in the normal person.
2. The differential blood count in hyperthyroidism is not of diagnostic and prognostic significance.
3. There is not a definite relationship between the blood picture and the basal metabolic rate. The lymphocyte count is not varied by an increase or a decrease in metabolism.
4. The blood count is not influenced by the severity of the disease, considering metabolism and weight loss as paramount factors.
5. A secondary anemia is not typical of hyperthyroidism.
6. A leukopenia is not characteristic of hyperthyroidism.
7. Sex and age do not influence the blood picture in toxic goiter.
8. In spite of clinical improvement, no appreciable change was observed in the blood count following the use of iodine in hyperthyroidism.
9. The only appreciable change in the differential blood count in goiter was observed following thyroidectomy for exophthalmic goiter. An increase in the polymorphonuclear count and a decrease in the lymphocyte count occurred.
10. I do not believe that the blood picture in hyperthyroidism is of any practical clinical importance.

MENINGITIS CAUSED BY FRIEDLÄNDER'S BACILLUS

A CASE WITH RECOVERY *

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Most bacteria that are capable of causing general septicemia have at one time or another been found responsible for a case of meningitis. A most interesting rôle has been played by bacteria of the mucosus type. Reports have been published of meningitis caused by Streptococcus mucosus, and Bacillus mucosus-capsulatus has been several times found to be the cause of fatal meningitis. And yet, it is rather peculiar, in view of the fairly large number of pneumobacillus septicemias, that not more cases of pneumobacillus meningitis have been reported. I was able to find in the American literature only a single case of Friedländer's meningitis. This case was reported by Malis [1] and had a fatal outcome. The scarcity of reported and the rarity of nonfatal cases give me special impetus to report another case of pneumobacillus meningitis, this time with a favorable outcome:

J. M., a Negro, aged 34, a janitor, admitted to the otolaryngologic service of Dr. B. M. Howley, Oct. 30, 1930, and treated by the neurologic department in conjunction with Dr. Howley, complained of high temperature, pain in back of the right ear, stiffness of the neck, and drowsiness.

The patient's father is living. His mother died from heart disease. The other members of the family, two brothers and one sister, are living and well. There has not been any tuberculosis, diabetes or insanity in the family.

As a child the patient had measles, mumps and chickenpox. At the age of 11 years he had a slight attack of malaria. While in the army in France, he had a slight attack of pleurisy. He has had gonorrhea, but stated that he had not had syphilis. He is married. His wife is healthy. They have no children.

Aug. 6, 1930, the patient was out swimming. A few days later he felt as if he had water in the ear. After a few more days he heard noises in the ear but did not have any pain. At that time a physician considered the condition harmless. September 15, he became ill with fever and called a physician, who treated him for nine days. He improved and went back to work. September 24, he saw Dr. Howley, who did a paracentesis. The patient went home and felt better for a few days but became worse again. October 5, Dr. Howley operated on him for mastoiditis. He stayed in the hospital one week and then went home. He felt fine until October 29, when he was seized with a high temperature, delirium, and stiffness of the neck.

At the time of the physical examination the patient was unconscious and was irrational at times. The right pupil was somewhat larger than the left. The pupils reacted well to light. Accommodation could not be tested. The ears and nose were normal. There was a scar behind the right ear, originating from a mastoid operation done three weeks previously. The head was held slightly backward, and it was impossible to bend it forward to any great extent. The skin of the whole face was very sensitive to the touch. The thyroid gland was not enlarged. The apex beat was heard in the fifth interspace, one fingerbreadth within the nipple line. There were no murmurs. The volume was good. The lungs were normal to percussion and auscultation. No râles were heard. Slight general rigidity was noted in the abdomen. Motor power was good in all the extremities. The tendon reflexes of the right arm and leg were slightly exaggerated. Abdominal and cremasteric reflexes could not be elicited. There was no Babinski sign. Clonus was not present. The head was turned toward the right. A temporary diagnosis of brain abscess with meningitis was made.

October 30, a spinal puncture was done, which showed decreased pressure and a very cloudy fluid of a peculiar viscous consistency. Dr. Howley operated immediately and found a subdural abscess, with pus of yellowish color and mucoid appearance.

Urinalysis showed: specific gravity, 1.026; reaction, acid; albumin, a trace; sugar, 1.43 per cent; acetone, negative. Urates and a few epithelial cells were demonstrated microscopically.

Examination of the blood showed: hemoglobin, 55 per cent; erythrocytes, 3,690,000; leukocytes, 21,150; differential count: polymorphonuclears, 88 per cent; large lymphocytes, 4 per cent; small lymphocytes, 8 per cent.

Examination of the spinal fluid gave the following results: cell count, 1,100; globulin, 4 +; Fehling reaction, not reduced. Smears did not show any organisms. Culture was made.

October 31 the patient was in a slightly better condition. The temperature was up to 103 but dropped late in the morning to 99.4. It rose again in the evening to 102. The pulse was between 80 and 100. Respirations were 20 per minute. The patient showed signs of meningitis: slight stiffness of the neck and a medium Kernig sign.

There were no focal signs present. The reflexes were equal on the two sides, and no pathologic reflexes were noted. There was no disturbance of the cerebral nerves.

Mentally, there was a rather marked stupor. After a long interval following an order, the patient opened his mouth. On being given any other order such as show the tongue or open the eyes, he always opened his mouth and did nothing else. Questioning elicited the same answer:

"What is your name?" "John Mason."
"Where do you live?" "John Mason."
"Are you married?" "John Mason."

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* From the department of Neuropsychiatry, St. Peter's General Hospital.

* Read before the Section on Nervous and Mental Diseases at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

[1] Malis, Solomon: Pneumobacillus (Friedländer's) Meningitis Secondary to Otitis Media, Arch. Otolaryng. **12:** 162-174 (Aug.) 1930.

It was not found advisable to do another spinal puncture that day.

November 1 the culture of the spinal fluid showed Bacillus mucosus-capsulatus (Friedländer's bacillus). The characteristics are shown in the accompanying tabulation. The culture from the brain abscess also showed Bacillus mucosus-capsulatus in a pure culture. The patient appeared much improved. He answered some questions and understood orders. The temperature had dropped to 100. Spinal puncture was performed. Only a small amount of fluid was obtained. Blood culture was negative. Culture of the fluid showed Bacillus mucosus-capsulatus.

November 3 the temperature was normal. Great improvement was noted. The spinal fluid pressure was 4 mm. of mercury. The fluid was semicloudy. A specimen of the fluid showed: cell count, 271; globulin, 2 +; culture, negative. The Wassermann and the Kahn reactions of the blood were negative.

November 6 the patient was doing well; no neurologic symptoms were noted.

November 8 the patient had an elevation of temperature and complained of a headache. The reflexes were equal on the two sides. The reaction of the pupils was normal. Very slight rigidity had recurred. The following observations were made: Kernig sign, 2 +; spinal puncture: pressure about 2 mm. of mercury; cell count, 122; globulin, 2 +. The fluid was much more cloudy than before. The patient was taken to the operating room again and the wound was explored by Dr. Howley. Some more free pus was found.

Bacteriology of Bacillus Mucosus-Capsulatus Found in the Spinal Fluid

1. Pus of brain abscess is mucoid, semiviscous.
2. Pure cultures of Bacillus mucosus-capsulatus derived from abscess and spinal fluid.
3. Gram-negative, nonmotile bacillus.
4. Bacillus is surrounded by large capsule.
5. When touched with a loop, a filament can be drawn out to a length of 2½ inches.
6. Liquid beef broth: diffuse growth, without pellicle.
7. Solid medium: grayish-white, diffuse colonies.
8. All carbohydrates (dextrose, lactose, mannite, salicin) are fermented with the formation of gas and acid.
9. Continuous incubation for seven days: Gas is absorbed with development of alkaline reaction (*p*H 7.1 to 7.2).
10. Gelatin: not liquefied.
11. Potato: very scanty growth.
12. No indole formation.
13. Milk: good growth, without coagulation.
14. Pathogenic for mice.
15. Patient's serum agglutinates strain in 1: 25 solution.

November 10 there was much improvement. The spinal fluid showed: globulin, 2 +; cell count, 122; sugar, negative. No organisms were demonstrated in the culture. The Wassermann reaction was anticomplementary.

Examination of the blood showed: hemoglobin, 68 per cent; erythrocytes, 4,110,000; leukocytes, 14,400; differential count: polymorphonuclears, 82 per cent; large lymphocytes, 3 per cent; small lymphocytes, 13 per cent, and eosinophils, 2 per cent.

November 12 the patient was doing well. The temperature was normal.

November 14 the patient was out of bed, walking around, and felt well. The wound of the head was closing up. The patient was discharged.

I have seen the patient several times since discharge, the last time, May 15, 1931. He is perfectly normal and has returned to work.

One of the latest studies of pneumobacillus meningitis comes from the pen of Carcelli.[2] He reports one fatal case and also makes a survey of the literature. He finds that, of twelve cases reported, recovery has occurred in three. In analyzing those three cases, however, I have certain doubts about their real classification. Guinon and Simon,[3] in 1910, reported one case of recovery in a child, aged 5 years. This recovery was rather complete, with the exception of a few difficulties in motion of the lower extremities which remained a permanent impediment. Reviewing the bacteriology of the case, one finds, however, that the cultures were very poor ones; pneumobacilli were found as well as pneumococci. Animal inoculations were negative. After inoculation with a bouillon culture, one mouse was sick for several days but did not die. All the other mice, inoculated with the pus from a spinal puncture, did not suffer at all. From the point of view of bacteriologic study, I consider this case a doubtful one. The other instance of recovery was reported by Lacoste and Boidin,[4] with a series of cases of acute meningitis in 1915. In one case, that of a soldier, they found pneumobacillus septicemia with a positive blood culture. The spinal fluid was under pressure but entirely clear, without increase in albumin and without leukocytosis. Yet they report that a pure culture of Friedländer's pneumobacillus was grown from the spinal fluid. They explain this as one of the rare cases of meningitis in which the cytology of the fluid is negative. I cannot agree with that classification and would rather suggest that in withdrawing the spinal fluid a vein was punctured and the culture was actually obtained from the blood. This renders this case doubtful, too.

Perrier's[5] case is that of a soldier in whom meningitis developed following a head trauma. The spinal fluid was under pressure and slightly bloody. Blood culture and spinal fluid cultures showed "une forme cocco-bacillaire," which was gram-negative and which he considered a form of Friedländer's bacillus. This patient had pneumonia also. Billet, in discussing the paper, considers this case a doubtful one because no sugar coagulation tests were performed, and inoculation was not attempted. Besides the cases mentioned by Carcelli, Elias[6] reports in 1924 a case in an infant who suffered a pneumobacillus meningitis following an umbilical infection. The child was apparently on the way to recovery but then died from influenzal pneumonia. This case is also doubtful as far as recovery is concerned.

In his article already mentioned, Malis[1] reports a second case of pneumobacillus infection. In this case, too, there was an increase in the pressure of the spinal fluid and at one time also an increase in cells, but I do not think that he himself wants this case, in which recovery occurred, classified as one of meningitis but rather as general septicemia with meningeal irritation but without invasion of the bacilli into the spinal canal. This leaves the present case as the only one in the literature in which the patient recovered, and the chemical and inoculation tests made the diagnosis of Friedländer's meningitis a definite one.

Papandrea[7] reports two fatal cases. Brunner[8] describes one fatal case of acute metastasizing generalized infection following otitis media and empyema of the mastoid process. Brain and Valentine[9] in an interesting article also report one fatal case following mastoid infection. Comte, Lévy-Bruhl and Dany,[10] in the latest publication on this subject, report a fatal case the bacteriology of which is very similar to that in the case reported here, in that all sugars were fermented with gas formation and later reabsorption, and gelatin was not liquefied. Animal inoculation tests were fatal in mice as well as in rabbits. A case described by Gernez and Razemon[11] has, besides meningitis, signs of osteomyelitis, and they consider this the first case of bone invasion by Friedländer's bacillus. The case of Bocca, Ranque and Sénez[12] was a fatal one in an infant. Rénon and Blamoutier[13] report a case of chronic labyrinthitis with Friedländer's bacillus, which is a rare occurrence and paralleled only by the case of Brain and Valentine.[9] The case of Lion and Minvielle[14] had also a fatal outcome, as had those of Dufourt, Delattre and Bonnet[15] and Lequeux.[16] The fatal case of Ménétrier and Bertrand-Fontaine[17] is mentioned because of the extremely sudden onset with coma (début brutal). The cases of Weichselbaum,[18] Mills[19] and Dmochowski[20] are mentioned here because they were described before the practice of lumbar punctures was known. In their cases the organisms were found in cultures obtained from the meninges on autopsy. Breton and Mahée,[21] in making a survey of Friedländer's pneumobacillus meningitis in 1929, report that of nineteen cases studied twelve were purely meningeal, while in seven the meningitis developed secondarily to other infections. In my case pure cultures of the same organisms were obtained from the spinal fluid and from the brain abscess.

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[2] Carcelli, G.: Meningite da pneumobacillo da Friedländer, Pensiero med. **19**: 203-205 (March 31) 1930.

[3] Guinon, L., and Simon, G.: Méningite cérébrospinale à pneumobacilles, Bull. et mém. Soc. méd. d. hôp. de Paris **30**: 501-506 (Nov. 25) 1910.

[4] Lacoste and Boidin, L.: Série curieuse de méningites aiguës, Paris méd. **5**: 221-224, 1915.

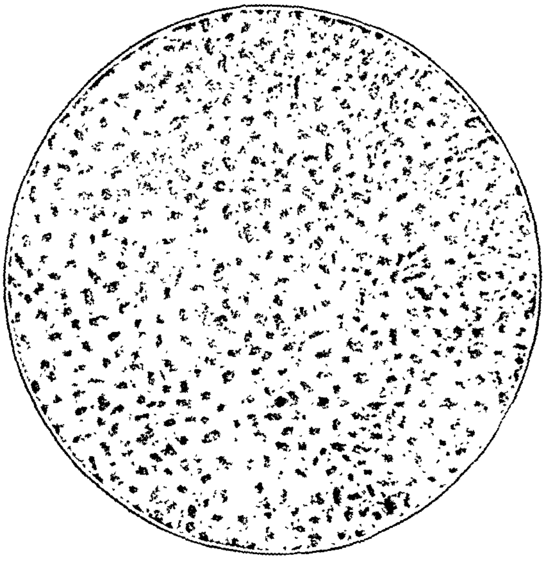
[5] Perrier: Méningite post-traumatique à pneumobacille, Soc. de méd. mil. franç., Bull. mens. **3**: 199-203 (May 6) 1909.

[6] Elias, F.: Meningitis beim Säugling durch den Bac. pneumoniae Friedländer, Deutsche med. Wchnschr. **50**: 578-579 (May 2) 1924.

[7] Papandrea, F.: Su due casi de meningite da diplobacillo di Friedländer, Pediatria **35**: 371-375 (April 1) 1927.

[8] Brunner, C.: Zur pathogenen Wirkung des Bacillus Friedländer: Ein Fall von akut metastisierender Allgemeininfektion nach Otitis media und Empyem des Processus mastoides, München. med. Wchnschr. **43**: 286-288; 318-320 (March 3) 1896.

[9] Brain, W. R., and Valentine, F. C. O.: Infection of the Meninges and Blood Stream by Bacillus Mucosus-Capsulatus, Lancet **1**: 855-856 (April 28) 1928.



Bacillus mucosus-capsulatus (Friedländer's). Culture from spinal fluid. Note clearness of capsules.

The bacteriology of these peculiar organisms has been described in several articles, by Friedländer,[22] Malis, Brain and Valentine and others, and I will restrict myself to a few general remarks referring to the table for comparison. It has been asserted that the main characteristic of Friedländer's bacillus, besides the formation of mucoid colonies and the capsules (shown in the illustration), is the ability to ferment all the sugars with or without the formation of gas, and its inability to liquefy gelatin.

Two interesting reports have been made lately by Kraus[23] and by Kliewe,[24] who have found a bacterium in two different cases which Kraus calls Bacterium mucosum-mutabile. He found gram-negative mucus-forming rods which in the beginning were hard to differentiate from Friedländer's bacillus, but soon there developed a yellowish color of the colonies which was never found with Friedländer's, and milk was coagulated. Sugars were fermented. Gelatin was liquefied. The patient's serum was agglutinated in a 1:160 solution. The bacillus did not coagulate cultures of other mucoid bacteria. It was pathogenic for mice. In the course of the disease the color changed, and Kraus believes that all capsule bacteria can change their morphology by adaptability of the germs to the environment. Hence he gave this particular one the name of Bacterium mucosum-mutabile. Yet, according to Kliewe, it seems probable that several types are well characterized.

Malis, in his article referred to, shows several photographs of bacilli which are forming long chains and which rather deserve the name of Streptococcus mucosus-capsulatus. Urbantschitsch[25] in 1926 reported a series of eight cases of streptococcus mucosus meningitis in which only one patient recovered. He considers the infection so severe that he recommends, in doubtful cases, an early lumbar puncture and, in case a mucosus germ is present, immediate bilateral operation without consideration of the conditions of the drums.

What makes infection with mucus-forming bacilli so dangerous? As I have mentioned in the description of my case, the pus contained in the brain abscess had the appearance and consistency of a mucoid semiviscous fluid. The spinal fluid, too, was transformed into a gelatinous liquid. It seems to me that these physical properties may be the cause of the grave prognosis. The mucus will tend to fill in spaces and to clot the foramina, and cerebral blocks may well be responsible for the generally fatal outcome.

CONCLUSIONS

1. Cases of meningitis caused by Bacillus mucosus-capsulatus (Friedländer's bacillus) are usually fatal.

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[10] Comte, Lévy-Bruhl, M., and Dany: Un cas de méningite à pneumobacille de Friedländer avec septicémie, Bull. et mém. Soc. méd. d. hôp. de Paris **47:** 139-142 (Feb. 2) 1931.

[11] Gernez and Razemon: Ostéomyélite, méningite et septicémie mortelle à pneumobacille de Friedländer, Echo méd. du nord **27:** *329-330* (Aug. 11) 1923.

[12] Bocca, Ranque and Sénez: Un nouveau cas de méningite à pneumobacille de Friedländer, Marseille méd. **57:** 1232-1233 (Dec. 15) 1920.

[13] Rénon, L., and Blamoutier, P.: Un cas de méningite cérébrospinale à pneumobacille de Friedländer d'origine otitique, Ann. de méd. **9:** 119-122 (Feb.) 1921.

[14] Lion, G., and Minvielle: Un cas de méningite suppurée à bacille du type Friedländer, Bull. et mém. Soc. méd. d. hôp. de Paris **48:** 286-288 (March 7) 1924.

[15] *Dufourt, Delattre and Bonnet:* Mèningite trainante à pneumobacille de Friedländer chez un nourrisson, Lyon méd. **138:** 375-376 (Sept. 26) 1926.

[16] Lequeux, P.: Etiologie et pathogénie des hémorrhagies graves du nouveau-né, Paris thesis, 1906, p. 103, case XVII.

[17] Ménétrier, P., and Bertrand-Fontaine: Sur un cas de méningite suppurée à pneumobacille de Friedländer à évolution suraiguê, Bull. et mém. Soc. méd. d. hôp. de Paris **48:** 114-116 (Feb. 1) 1924.

[18] Weichselbaum, A.: Ueber eine von einer Otitis media suppurativa ausgehende und durch den Bacillus pneumoniae (Friedländer) bedingte Allgemeininfektion, Monatschr. f. Ohrenh. **22:** 200-205 (Aug.), 229-233 (Sept.) 1888.

[19] Mills: Méningite à pneumocoques, J. de méd. de Bruxelles **94:** 501-503 (July 6) 1892.

[20] Dmochowski, Z.: Beitrag zur Lehre über die pathogenen Eigenschaften des Friedländerschen Pneumokokkus, Centralbl. f. Bakt. **15:** 581-588 (April 27) 1894.

[21] Breton, A., and Mahée, G.: À propos des méningites cérébrospinales à pneumobacilles de Friedländer, Gaz. méd. de France **3:** III-V (Aug. 15) 1929.

[22] Friedländer, C.: Ueber die Schizomyceten bei der akuten fibrinösen Pneumonie, Virchows Arch. f. path. Anat. **87:** 319-324 (Feb. 4) 1882.

[23] Kraus, E. J.: Ueber ein neues menschenpathogenes Kapselbakterium, Centralbl. f. Bakt. (part 1) **99:** 497-505 (Sept. 20) 1926.

[24] Kliewe, H.: Tödlich verlaufende Meningitis, verursacht durch einen Kapselbazillus, Centralbl. f. Bakt. (part 1) **107:** 100-104 (April 18) 1928.

[25] Urbantschitsch, E.: Ueber Mucosus-Meningitis, Ztschr. f. Hals-, Nasen- u. Ohrenh. **16:** 129-147 (July 31) 1926.

2. Only three cases in which the patient recovered have been reported; in all these the diagnosis is not satisfactorily confirmed.

3. A case is presented in which Friedländer's meningitis was associated with a subdural abscess, following mastoiditis. The same micro-organism was found in cultures of the abscess and of the spinal fluid.

4. By bacteriologic tests the micro-organism was identified as Bacillus mucosus-capsulatus (Friedländer's bacillus), with the characteristics of the most frequent type of this group.

5. The patient recovered completely, representing the first case with recovery reported in the American literature and the first nonfatal case in general in which definite bacteriologic tests were made.

6. A survey of the literature is also presented.

49 Bayard Street.

ABSTRACT OF DISCUSSION

Dr. Bartholomew M. Howley, New Brunswick, N. J.: When I saw this man he had been rather neglected. He stayed away after I had performed a paracentesis and came in with full-fledged mastoiditis. He did not have the regular symptoms—no pain back of the mastoid at all. His most prominent symptom was headache. Roentgen examination showed definitely involvement of the mastoid, and I operated on him that day. I found the mastoid filled with pus, and going down deeper I found a sinus thrombosis. I opened that up, removed the thrombus, and packed with iodoform gauze. The patient recovered and in a week's time was discharged. His temperature did not go up after I operated on him. I saw him at my office and dressed the wound every second or third day. About the third or fourth day before he went to the hospital the second time he began to complain of headaches. I knew I had drained the wound well, so I was a little bit suspicious. I asked him whether he had a syphilitic infection, and he admitted that he did. To my surprise, a few days later I had a telephone call at 2 o'clock in the morning that the man was unconscious and in bad shape. I called the ambulance, and he was admitted to the hospital that morning. At 7 o'clock it looked as if he was going to die. I made a hurried examination and found that he had a cerebrospinal meningitis. Spinal puncture showed the spinal fluid loaded with pus cells. I had him on the operating table by 12 o'clock. I opened up the sinus again and removed some clot; there was no sign of pus, but the internal wall had been necrosed. I passed a probe in the brain tissue for an inch and a half. I opened the dura and drained it, using an iodoform drain. But I had in mind the fact that the man had acknowledged the syphilitic infection of nine years before; so that same day I gave him 0.4 Gm. of arsphenamine. The next day he was better. About six days later he had another injection. That same day his temperature went up to 104 F. I didn't think it was due to the injection, so I brought him again to the operating room. I found some pus in the sinus near the dura, opened the sinus up well and packed it with metaphen. After that the man improved nicely. I don't know why he recovered. Almost all such patients die.

Dr. Karl Rothschild, New Brunswick, N. J.: My general attitude toward the treatment of meningitis, outside of the epidemic type, is extremely conservative. I have found that by injecting serums or chemicals one may often do more harm than good. I recently saw a number of rare cases, among them one of the few cases reported of a nonhemolytic streptococcus meningitis. The patient recovered after having been in a coma for three weeks. I kept the man alive solely by injecting 5 per cent solution of dextrose, 1,000 cc. intravenously two times a day. It was the only food he received for three weeks. Besides, I performed spinal drainage two times a day, taking out as much fluid as I possibly could. The case is going to be reported in an early issue of the *Journal of Nervous and Mental Disease*. It is my opinion that conservative treatment in these cases might lead one further than one usually arrives at by the use of chemical combinations and more or less nonspecific serums.

THE SUBSEQUENT COURSE OF FORTY PATIENTS WITH ACUTE "DRY" PLEURISY *

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There is a tendency, now reasonably well established, to consider acute lesions of the pleura as tuberculous, unless some other cause is evident. Like the criminal in the French courts, a patient with an attack of acute pleurisy is "guilty" of tuberculosis until it can be proved otherwise. Particularly is this true of the serofibrinous type, or pleurisy with effusion. The literature abounds in reports of patients with this type of pleurisy who have been followed for years. The percentage of these in whom tuberculosis of the lung develops varies in the different reports according to the treatment carried out following the acute illness, the length of time the patients are followed, and the ascertainable cause of death in those who have died. Whatever the end-result, pleurisy with effusion occurring as a primary illness without demonstrable cause is looked on as a sign of tuberculous infection just as is an unexplained hemoptysis.

The etiologic factor in acute dry pleurisy is less definitely established. The question is important because the physician must often decide whether a patient, previously well, in whom the symptoms and signs of an acute dry pleurisy suddenly develop, should be treated as a patient with incipient pulmonary tuberculosis. That a dry pleurisy is a frequent precursor of pulmonary tuberculosis is well appreciated. From 20 to 50 per cent of patients with phthisis give a definite history of pleurisy of one form or another,[1] and doubtless many of these have only the transient dry pleurisy with nothing more than a brief period of acute pain in the chest. From the other end of the scale, attempting to answer the question as to the number of cases presenting acute dry pleurisy in which tuberculosis of the lung develops, the facts are meager. In the literature one finds very few statistical studies on the subject. Lord[2] in 1909 reported sixty cases presenting this disease, followed from one to twelve years, in eighteen of which pulmonary tuberculosis "certainly or probably developed." In the series reported by Allard and Köster[3] in 1911, clinical tuberculosis developed sooner or later in 42 per cent of the patients with dry pleurisy (fifty-seven in number). The many statistical studies made are on patients in tuberculosis sanatoriums who give a history of pleurisy, on patients with pleurisy with effusion, or on those with "idiopathic" pleurisy in which no figures are given differentiating the dry form from that with fluid. The question arises as to whether these two forms of pleurisy represent a difference in the severity of the infection, in the extent of involvement of the pleura, in the resistance and reaction of the individual, or in the etiologic incitant. Scheel and Föien[4] believe that the greater effusions are followed more frequently by tuberculosis than are the less abundant exudates and the dry pleurisies. The acute dry form frequently develops into a pleurisy with effusion, a fact which suggests that a dry pleurisy is but a mild or early expression of the pathologic process which results in the outpouring of fluid. If such is the case, one may justifiably look on an acute dry pleurisy as just as good evidence of tuberculous infection as is pleurisy with effusion. Such is certainly the tendency in the modern textbooks on this subject,[5] yet there are very few figures to support this contention.

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* From the Medical Clinic of the Peter Bent Brigham Hospital.

[1] Lord, F. T.: Diseases of the Bronchi, Lungs and Pleura, Philadelphia, Lea & Febiger, 1925. Funk, E. H.: Oxford Monographs on Diagnosis and Treatment, New York, Oxford University Press, 1929, vol. 5. Allbutt, T. C.: The Relations of Pleurisy to Tubercle, Lancet **2**: 1485 (Nov. 30) 1912.

[2] Lord, F. T.: The Treatment of Fibrinous and Serofibrinous Pleuritis, Boston M. & S. J. **160**: 469 (April 15) 1909.

[3] Allard, H., and Köster, H.: Tuberkulos efter pleurit, Hygiea **72**: 1105 (Oct. 10) 1911, cited by Allbutt (footnote 1).

The reasons for the paucity of definite data on patients with acute dry pleurisy are apparent. In the first place, because patients with this disease are not often severely ill for any length of time, they are not treated as hospital patients, and therefore hospital statistics are not forthcoming. If they become hospital patients, it is not easy to get adequate follow-up studies on them, for reasons which will be cited later. Secondly, the diagnosis of acute dry pleurisy in the absence of a friction rub or fever is often difficult, however definite the symptoms, and any series of cases must contain some in which the diagnosis will be open to question. Lastly, as stressed by Lord[2] and by Capps,[5] the condition is very rarely if ever primary, being related much more commonly to infection in the lung, lymph glands or other sites not detectable at the time of the acute illness.

The present study was undertaken to secure additional information regarding the subsequent course of patients with acute dry pleurisy. The case histories of all patients seen at the Peter Bent Brigham Hospital from 1913 to 1930 in whom the condition was diagnosed as pleurisy were reviewed. Only those cases were accepted for follow-up study in which the pleurisy was acute, without definite evidence of fluid, and in which no primary disorder could be demonstrated. Thus, all cases of pneumonia, of pulmonary tuberculosis or lung abscess, of pleurisy with effusion, of heart disease in which infarction of the lung was either evident or suspected, of pericarditis or mediastinitis, of definite rheumatic infection, of sepsis and of chronic nephritis were excluded. Four cases with symptoms and signs indicating an acute bronchitis were included in which there was evidence as well of a definite pleurisy. A tabulation of the cases reviewed indicates the incidence with which pleurisy is seen at this hospital. The 930 cases reviewed fall into three groups. One hundred and forty-nine were acceptable as instances of acute dry pleurisy. In the second group there were 142 cases in which this diagnosis might have been made but, because of the absence of a rub or râles, of fever or a clear-cut history, they were not accepted and were classified as "questionable." Our review of these case histories has made us willing to subscribe to the aphorism of Sir Thomas Horder,[6] who wrote, "There are probably few diseases more often diagnosed without adequate reasons than pleurisy; there are probably few diseases that exist more often unsuspected." It is commonly very difficult to make a diagnosis of pleurisy. A patient who complains only of chest pain without cough or fever and who has no friction rub or râles may be suffering from nothing more than myositis or neuralgia, yet the diagnosis of pleurisy nearly always comes first to mind. Hence one finds many instances of "questionable" pleurisy. The third group of 639 contains the cases of pleurisy with effusion or pleurisy secondary to some other condition, such as pneumonia or tuberculosis, which was recognizable at the time the cases were under observation.

Follow-up studies were possible on only 40 of the 149 patients with acute dry pleurisy. Information could be obtained on so few, largely because of the peripatetic habits of ward and dispensary patients, and partly because many of them, having no subsequent illness, did not return to the hospital or were apparently unwilling to do so when asked. The 109 cases in which no follow-up records were obtainable have been discarded because little that is new can be learned from them.

The important facts concerning the forty patients followed are these: There were twenty-one males and nineteen females. The average age was 30 years, with 14 and 54 as extremes. To indicate the extent of the illness, the duration of symptoms before the patients were seen averaged nine days, with one and ninety-six as extremes. The patients admitted to the hospital had an average stay of thirteen days. Concerning the symptoms and signs of pleurisy, all forty had pain, eighteen (45 per cent) of them had cough, twenty-eight (70 per cent) had a pleural friction rub, and twelve (30 per cent) had râles. The average maximum mouth temperature was 99.8 F. Twelve had no temperature higher than 99; eleven had temperature between 99 and 100, and fifteen between 100 and 103. The average white blood cell count was 11,800, with 8,000 and 25,000 as extremes. We are chiefly concerned here with the subsequent course of these patients. Our information about them was obtained in twenty-two instances by correspondence and in eighteen by examination in the outpatient department of this clinic. The patients written to were sent a questionnaire inquiring about their interval history and their health at the present time.

Source of the Material Studied

	Number of Cases		
	Acute Dry Pleurisy	Questionable Acute Dry Pleurisy	Pleurisy with Effusion or Secondary to Other Conditions
House patients (among 36,000 admissions)........	74	23	471
Outpatients (among 139,000 patients).................	75	119	168
Total..................	149	142	639

Of particular interest is the fact that in only four of these patients did pulmonary tuberculosis develop. The remaining thirty-six who have reported on their health or have been examined after a period of from one to sixteen years have been found to be essentially in good health. The average length of time they have been followed is seven years, one year being the shortest and sixteen years the longest period. Four patients have had one or more recurrences of pleurisy, and two have had lobar pneumonia. A few have reported respiratory infections without any consequential sequelae, and doubtless many of the others had "colds" or bronchitis which they did not report. One patient has chronic bronchitis at the present time, and another has peptic ulcer.

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[4] Scheel, O., and Föien, T.: Pleurésies et tuberculoses consecutives aux pleurésies, Acta med. Scandinav. **68:** 5, 1928.

[5] Lord (footnote 1). Funk (footnote 1). Capps, J. A.: Diseases of the Pleura, Oxford Medicine, New York, Oxford University Press, 1929, vol. 2.

[6] Horder, Thomas: Medical Notes on Pleurisy, Practitioner **103:** 248 (Oct.) 1919.

The four patients in whom active pulmonary tuberculosis developed are worthy of mention. The first gave a strong family history of tuberculosis. She had had cervical adenitis at the age of 12 years and again at 14, and an acute pleurisy at the age of 21½, at which time roentgen examination of the chest showed enlarged hilus shadows and increased lung markings. On the patient's admission to the hospital six months later, the roentgenogram showed fibrosis of the lung fields, including the apexes, and a hazy costophrenic angle indicating an old pleurisy. It is probable that she had active pulmonary tuberculosis at this time, though it was not definitely diagnosed till a year later. She received treatment in a sanatorium and, at the present time, eight years later, is in good health. A second patient with a negative family history had acute cervical adenitis at the age of 20 years, followed in nine months by acute dry pleurisy, at which time she was seen in the hospital and had two negative roentgen examinations of the chest. One month after her discharge, a pleural effusion developed, and she was treated as a patient with tuberculosis but never was shown to have a parenchymatous lesion of the lung. At present, seven years later, she is in good health. The other two patients gave no family or past history of tuberculosis. In one of them a pleural effusion developed four months after her dry pleurisy, and she died ten years later from pulmonary tuberculosis. The other at present, six years after the acute dry pleurisy, shows roentgen evidence of a small apical lesion which is inactive.

An interesting side-light in this study concerns the family and past history of certain of the patients as obtained at the time they were first seen. That these details of a history sometimes are inaccurately given is well appreciated, yet most patients are aware of the presence of active tuberculosis in the members of their own family. In dealing with a patient with acute pleurisy, one should consider the family history of great importance. From the records there was evidence of a family history of tuberculosis in only five instances. In one of these patients, previously noted, pulmonary tuberculosis developed. The other four are well at the present time. Seven patients gave a history of a previous attack of pleurisy. Two of these were among the four in whom tuberculosis subsequently developed. These cases are too few to treat statistically and are cited merely to indicate the incidence of a "positive" past or family history in patients of this type.

COMMENT

This review was undertaken, as previously stated, to secure additional information on the after-course of individuals with acute dry pleurisy. The current teaching is that, in most if not in all instances in which no primary cause is evident, such pleurisy should be considered tuberculous in nature. Figures given in the literature indicate that from 30 to 40 per cent of patients with dry pleurisy eventually manifest pulmonary tuberculosis. In view of this we were surprised to find that, among forty individuals with acute dry pleurisy in whom no primary cause could be shown and who have been followed from one to sixteen years (average seven years), pulmonary tuberculosis has developed in only four. Two of these had had infections that were probably tuberculous in character before they had pleurisy. In three of them, either pleural effusion or pulmonary tuberculosis developed within a year after their acute pleurisy. The fourth has only roentgen evidence of tuberculosis at the present time and is working. The remaining thirty-six patients, eighteen of whom have since been examined at this hospital (ten by roentgen examination), are in good health, with the two exceptions previously noted.

We are unable to explain the marked difference in the eventual course of these forty patients as compared to the series previously reported. In selection of the patients, care was taken to include none that had pulmonary tuberculosis or pleural effusion at the time. Some of them had mild cases of pleurisy, yet twenty-seven patients were ill enough to necessitate hospital treatment. Whether the after-care they received played any part in this low incidence of subsequent illness is impossible to ascertain accurately. Because of the prevailing opinion that dry pleurisy is probably of tuberculous etiology, most of the patients were doubtless advised to rest for a period of several weeks before resuming activity. It is not an unfair assumption that many of them did have a mild tuberculous infection, which became quiescent with a period of rest. Further follow-up studies should be made on these patients after a longer period of time, particularly on those who have been observed for only one or two years following their pleurisy.

While this group of cases is not large, it points strongly to a favorable prognosis in acute dry pleurisy of unknown cause. Some instances of this disease, by their subsequent course, will prove to be the early manifestations of pulmonary tuberculosis. This study suggests, however, that phthisis does not develop in as many cases of dry pleurisy as has been taught previously. Nevertheless, in any patient with this disorder every care should be taken to rule out the possibility of pulmonary tuberculosis by careful physical and roentgen examination. Following the acute illness, the patient should be kept under close surveillance for several months. From the few instances in this study it would appear that if further tuberculous activity is to occur it is most apt to show itself during the early months following the pleurisy. In those who have fever during the acute illness, a month of bed rest is a safe investment, and all patients should follow an easy-going mode of life for from two to six months' time. They should have repeated roentgen examinations during this interval and a complete check-up at the end. Those whose family or past history makes tuberculosis seem a possible etiologic factor should be kept in bed at rest for a longer period of time, until the likelihood of the development of pulmonary tuberculosis has passed.

SUMMARY

1. The records of 639 patients with pleurisy seen at the Peter Bent Brigham Hospital were reviewed. One hundred and forty-nine of these were acceptable as instances of acute dry pleurisy. The subsequent history of forty of the latter during a period averaging seven years has been obtained by correspondence or examination.

2. In four of the patients pulmonary tuberculosis developed, in three of them *within one* year after the acute pleurisy. The remaining thirty-six are in good health.

3. While one should appreciate the likelihood that an acute dry pleurisy may be an early manifestation of tuberculous infection, this study suggests that pulmonary tuberculosis is apt to develop in fewer of the cases than has been taught previously.

ADVANTAGES OF CECOSTOMY PRELIMINARY TO RESECTIONS OF COLON AND RECTUM *

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Cecostomy has been advocated especially in acute obstruction of the colon but has not been sufficiently emphasized as a measure preliminary to interval operations on the large intestine. Wound repair differs markedly according to the tissues injured, the single, repeated or continued factor of injury preceding or associated with repair, the factor of rest, but especially the factors of blood supply and of presence or absence of infection. An uncomplicated, sutured, sterile incised wound of the skin presents the simplest form of repair, for the injury is mechanical and single, and the reparative process goes on without the interference of further injury. Repair in a sutured incised wound of the colon is quite the opposite. It is complicated from the start by factors which not only delay but which may prevent wound healing: infection with bacteria of the most virulent forms, tension on suture points and lines due to peristalsis or distention, and compromised blood supply due to edema of the infected tissue or to vascular compression, the result of a distended intestine.

Unfortunately, the proof of the foregoing premise is the very high percentage of morbidity and mortality associated with the surgery of the large intestine, and unfortunately too many surgeons accept this high risk or evade it by not attempting surgery of the colon. Ought we not rather to analyze the reasons for this risk and seek means of reducing it?

In studying the subject of wound repair in various tissues, one is immediately struck with the similarity in the graphs of the rate and rhythm of healing, as determined by different investigators. Carrel and Lecomte du Noüy,[1] and Spain and Loeb[2] obtained similar curves in cicatrization of skin wounds; and Harvey, Howes and Sooy[3] found remarkably consistent curves in the repair of wounds of the skin, fascia, muscle and stomach. These mathematically measured rates of healing agree consistently with many of everyday clinical observations, but they show definite critical periods. In all these curves there is a "lag" period of from four to six days during which repair is quiescent; then a period of from six to nine days of fibroblast proliferation and organization, when healing rapidly rises to its maximum point of tensile strength. Following this is a long period, varying in different tissues of maturation of the cicatrix.

It is to the "lag" period and the first days of fibroplasia in the colon that I would call attention. During the first two to four days of repair following anastomosis of the colon, the cut ends, or stoma edges, are held together by suture material or by pressure of apposing buttons, if such a mechanical means is used. Leakage is prevented, to a certain extent, by accurate suture, but far more important and effective is the sealing off of the peritoneal lines of contact, which are usually apposed by the seroserous stitch, by the rapidly forming fibrinous exudate. Provided there is no gross leakage and provided the sutured part can be kept at rest for a few hours, the wonderful reparative peritoneal exudate builds up a sufficient barrier to infection until the process of fibroplasia has united the wound edges and the epithelium has bridged the defect.

But it is during this critical first four to six days, when only peritoneal exudate and sutures are holding the barriers, that tension on the suture line either by atonic distention or by overactive peristalsis can accelerate the factor of infection in destroying the peritoneal line of defense and establishing a peritonitis, localized or diffuse, or a fecal fistula.

Distention of the colon both stretches the tenuous line of suture and diminishes the much needed blood supply to the area of wound repair. This in turn favors pressure necrosis of the suture line and leakage.

Whether one uses the suture or button method of anastomosis in a contaminated field, or attempts one of the 200 or more described methods of aseptic anastomosis, the factors of distention and peristalsis will continue to be damaging and even fatal factors during the first two to six days of repair. It is in an effort to reduce these factors and to place the colon at rest during the critical period of healing that I am advocating the use of cecostomy, preferably two to four days before the major procedure on the colon.

The advantages of a cecostomy carried out two to four days before a resection of the colon or rectum are:

1. It makes possible a proper cleansing of the colon before the major procedure.

2. It permits the part anastomosed to be at rest until the period of fibroplasia is complete.

3. It increases the comfort of the patient by reducing distention and pains of ineffectual peristalsis.

4. It obviates the temptation and the necessity in some cases of giving enemas or irrigations in the critical period of repair.

5. In cases of partial or complete obstruction of the colon or rectum it has long been recognized as essential. If it works so well in the patients who are desperately sick, it is even more efficacious in the nonobstructed case.

I advocate cecostomy rather than appendicostomy for the following reasons:

1. The appendix either is missing or is so atrophic in adults as to be of little use as a sheath for a rubber tube.

2. A cecostomy properly done by the Kader or the Witzel method closes more promptly than an appendicostomy.

3. A tube sufficiently large to act as a real safety valve can be placed in the cecum more easily than in the appendix.

There are certain dangers to be avoided in the use of preliminary cecostomy:

1. The overenthusiastic use of the cecostomy tube as a means of administering fluids or enemas or irrigations before and after major procedures on the colon and rectum should be discouraged. This carries risk of leakage around the cecostomy opening and, after resections, of distending the intestine proximal to the suture line.

2. The tube should be kept in one position. If it comes out, it should be left out.

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* Read before the Section on Surgery, General and Abdominal, at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Carrel, Alexis; and Lecomte du Noüy, P.: Cicatrization of Wounds: Latent Period, J. Exper. Med. **34:** 339 (Oct.) 1921.

2. Spain, K. C., and Loeb, Leo: Wound Healing, J. Exper. Med. **23:** 107 (Jan.) 1916.

3. Howes, E. L.; Sooy, J. W., and Harvey, S. C.: The Healing of Wounds as Determined by Their Tensile Strength, J. A. M. A. **92:** 42-45 (Jan. 5) 1929.

3. Only the most gentle syringing of the tube to dislodge fecal particles in the several terminal perforations should be used.

4. We have found that a number 24-28 French colon tube of good rubber, with from four to six openings in the terminal 8 cm., gives the best results as a safety valve. The Witzel method is the one of choice in introducing the tube into the cecum. The cecostomy is usually done under local anesthesia from two to three days before the major procedure.

In the Presbyterian Clinic in New York, we have used cecostomy preliminary to resection of the colon or rectum in twenty-nine patients during the past ten years. But in the majority of these patients, especially during the first five years, the cecostomy was done only in cases of acute obstruction with the patients in poor condition. In the majority of these patients the growth was advanced and the Mikulicz procedure was done. For these reasons the mortality rate was high in this series; that is, ten of the twenty-nine patients died from one to thirty days after the major procedure was done. In only four cases was there a peritonitis or fistula resulting in fatal complications. Death in the other six was due to such factors as uremia, pneumonia, heat stroke, pulmonary embolism and cachexia.

In the nineteen patients recovering from resection of the colon or rectum, the postoperative course was characterized by lack of distention and of gas pains. It was possible in the cases with the Mikulicz procedure or with abdominoperineal resection of the rectum to leave the colostomy closed until from the fifth to the eighth day, allowing for good wound healing and subsidence of edema in the colostomy.

I have been impressed by the fact that in only one of these cases in which colocolostomy was preceded by cecostomy did a fecal fistula develop.

CONCLUSIONS

1. Cecostomy preliminary to colocolostomy favors uncomplicated healing of the suture line by preventing distention and peristalsis of the proximal colon.

2. Cecostomy preliminary to a Mikulicz procedure in the colon or to an abdominoperineal resection of the rectum permits delay in opening the colostomy, until wound healing has occurred and edema in the colostomy has subsided.

622 West One Hundred Sixty-Eighth Street.

ABSTRACT OF DISCUSSION

Dr. Irvin Abell, Louisville, Ky.: I am sure that there will be no dissent from the statement of the author that the safety of resection of the colon in the presence of obstruction is tremendously enhanced by the two-stage operation. With obstruction, the absorbed toxins lower the resistance of the patient; the thickening and edema of the obstructed intestine interfere with its vitality and lower its reparative ability, which is at best none too good; the accumulation of septic fluids renders asepsis difficult to maintain and prevents satisfactory technic, while the abdominal distention hampers both technic and manipulation. The primary decompression permits of a proper preparation of the colon and certainly obviates in large degree the dangers just mentioned. When the obstruction is in the left half of the colon, cecostomy is an ideal procedure. When the obstruction is in the cecum, such an enterostomy brings the drainage point directly in the field to be utilized later for resection. In such instances, when the local and general conditions permit, I prefer an ileocolostomy as the primary or first stage and later the removal of the cecum and ascending colon as the second stage. When this has not been advisable I have done an ileostomy proximal to the obstruction, bringing the tube out through a stab wound in the midline, leaving the right half of the abdomen free from drainage, so that a clean field is afforded for the second operation. In the obstructions due to rectal growths I have not used the cecostomy but have been content with the left abdominal colostomy, the type and character of the colostomy depending entirely on the choice for or against subsequent extirpation of the rectum. It is necessary to make an incision in order to acquire the knowledge on which such a choice is based; this will also permit one in the event of choice of the radical operation to do the first step in it and, if not, to do a palliative colostomy. A large rubber tube anchored in the proximal segment by superimposed purse-string sutures has been satisfactory in giving drainage as needed and is helpful in protecting the wound from fecal contamination, until sufficiently firm healing has occurred to prevent infection of the wound itself. In the instances in which there has not been associated obstruction, I have employed the two-stage operation as a routine measure in the left half of the colon, whereas in the right half of the colon I have done the right hemicolectomy with the union of the terminal ileum to the transverse colon as a one-stage procedure. The differences in the anatomy and function of the two halves of the colon furnish the reasons that have led me to this practice.

Dr. Alexius McGlannan, Baltimore: I am glad to corroborate Dr. Whipple's observations and his conclusions. It has been said that in cases of anastomosis of the colon an enterostomy, proximal to the suture line, is a life-saving method of procedure. This, I believe, is literally true, and Dr. Whipple has given us grounds on which to base this belief. There could be no question that the preliminary colostomy, the preliminary enterostomy for the resection and removal of the tumor, adds tremendously to the patient's chance for recovery, both as to freedom from the toxemia and as to later development of peritonitis.

Dr. J. Shelton Horsley, Richmond, Va.: Physiologic rest is our chief therapeutic resource. Instead of making a tube enterostomy, it would be better to do a complete enterostomy and so give not partial but complete rest to the affected bowel. Through a muscle splitting incision, preferably on the right side, the ascending colon is brought up onto the wound, and a glass rod is placed under it. A rubber tube is inserted for two or three days. The bowel is packed around with gauze and opened after two days, a complete artificial anus thus being made. If by any chance the fecal matter tends to pass over the glass rod, gentle pressure with the dressing will prevent it. The distal part of the colon can be irrigated by manipulation of the glass rod, and ten days later the diseased bowel is resected. For a while I was carried away with the so-called aseptic technic, but I have abandoned it, because by giving the bowel rest and by cleaning it of fecal matter one can reduce the bacterial flora to such an extent that the colon can be sutured from within with the same impunity that the upper small intestine is sutured. It is important to approximate the mucosa accurately so as to leave no raw or peritoneal pockets for accumulated feces, and that can be done only by suturing from within, but a second row of interrupted mattress sutures is applied externally. After ten days, when the bowel is clean, the resection is done, and ten days later, when the united bowel has healed, the artificial anus is closed quite readily by suturing it with two or three layers of interrupted mattress catgut sutures, leaving the ends of the last layer long, sinking the sutured bowel into the abdominal cavity, passing the long ends of the sutures through the inner portion of the abdominal wall and so approximating the bowel to the anterior peritoneum. This makes a three-stage operation: ten days after the complete enterostomy, the resection, and ten days after resection, the closing of the enterostomy.

Dr. G. A. Hendon, Louisville, Ky.: I want to present a method of performing enterostomy that has the advantage of simplicity combined with efficiency and that will answer the purpose in the majority of cases. I take a mushroom catheter and thread it over a stilet; it can be introduced into the bowel through an extremely small opening; when the stilet is withdrawn, the end of the catheter expands, and it remains in situ. The objection to the Witzel method is that it violates one of the fundamental mechanical laws; namely when one binds together substances of unequal density and subjects them to any stress or strain, the substance of less density will yield and thereby produce a leak. In the method that I am proposing, one does not pass any sutures through the catheter. If the bowel is not too much damaged, one may make a layer or two of purse-string sutures. The catheter can be brought through the omentum, as described by Dr. Mayo, which adds security to its position, and brought out through the operative incision. When its usefulness has expired, the shank of the catheter is drawn up as closely as possible and cut off, and the remainder is passed out through the alimentary canal by the natural processes of evacuation. It will be found that the method serves many useful purposes and can be rapidly done.

DR. ALLEN O. WHIPPLE, New York: I meant to state in the paper that the method of cecostomy was limited to the cases in which the cecum was not involved. Dr. Abell is quite right in stating that it is not a method suitable for cases in which the cecum is to be resected. In regard to the subsequent dealings with the cecostomy, in none of the cases in which this method was carried out was it necessary to close the cecostomy. In some ways, undoubtedly, a cecostomy such as Dr. Horsley mentioned is a more effective method, but it certainly requires a subsequent closure. I am interested in the suggestion of Dr. Hendon in regard to the use of a mushroom catheter. The only objection that I could see, possibly, to that method is that it might be a little more difficult to irrigate in case the openings of the catheter became obstructed, but I should be greatly interested in trying it for that purpose.

Clinical Notes, Suggestions and New Instruments

TRANSITORY HYPERTENSION DURING SPINAL ANESTHESIA: REPORT OF A CASE

EDWARD P. HELLER, M.D., AND CARROLL P. HUNGATE, M.D.
KANSAS CITY, MO.

During the past few years the literature has contained numerous articles intended to encourage the use of spinal anesthesia and pointing out the safety of this procedure. Excluding the conditions in which this type of anesthesia is contraindicated, e. g., intestinal perforation, shock and conditions contraindicating the Trendelenburg position, it has been amply shown that the morbidity and mortality are increased through rapid fall in vascular tension not properly controlled by the use of epinephrine or ephedrine.

The literature stresses the complete relaxation that usually occurs in surgery below the diaphragm following the administration of spinal anesthesia. With this type of anesthesia there is usually an absence of intestinal distention during the operation and during the postoperative period. The latter is usually marked by normal peristalsis, a soft abdomen and the absence of pain associated with distention, which is so common following ether anesthesia. In our work we have found that, in surgery below the diaphragm, spinal anesthesia almost invariably gives complete relaxation and diminishes postoperative discomfort.

In a review of the literature we fail to find any reports of hypertension following the use of spinal anesthesia. McKittrick, McClure and Sweet[1] and practically all others in their reports on this type of anesthesia fail to note any cases in which hypertension developed but rather stress the fall in vascular tension. Twenty-five per cent of the series had a fall of 50 per cent or more in blood pressure. Although the exact physiologic action of ephedrine is not agreed on, Burch and Harrison,[2] in their experiments on dogs anesthetized by spinal anesthesia, found that when ephedrine was given intravenously in no instance did the "mean blood pressure rise above the control value before anesthesia." When ephedrine was given intraspinally the blood pressure was equal to or above normal. They do not record a marked hypertension following the use of ephedrine either intravenously or intraspinally.

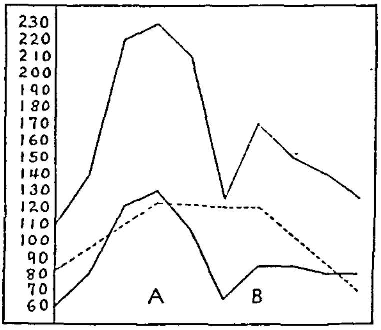
REPORT OF CASE

A man, aged 39, seen by one of us, Jan. 1, 1930, complained of abdominal discomfort with localized tenderness in the right lower quadrant. Periodic attacks of a similar nature had occurred over a period of eight months. He was again seen, July 16, 1931, at which time an operation was advised for chronic appendicitis. On the first date the blood pressure read 125 systolic and 70 diastolic. He was admitted to the Research Hospital, July 17, at which time the blood pressure read 110 systolic and 60 diastolic. He was given a preliminary narcotic consisting of one-sixth grain (11 mg.) of morphine and 1/150 grain (0.4 mg.) of atropine an hour before operation, July 18. He was given 0.025 mg. of ephedrine subcutaneously immediately before the spinal puncture; 3 cc. of a proprietary preparation containing procaine hydrochloride and strychnine sulphate (spinocaine-Metz) was given intraspinally. The blood pressure, pulse and respiration were recorded every five minutes during the operation, as shown in the accompanying chart. The administration and the control of the anesthesia were in the hands of one who is well versed in spinal anesthesia, Dr. Frank Hurwitt.

A right rectus incision was made. Coincidental with the rise in vascular tension there was a marked rigidity of the abdominal musculature. Fifteen minutes elapsed before the patient was moderately relaxed and anesthesia present. During the entire operation, complete relaxation was absent. The appendix was long and tortuous and decidedly bound down by many adhesions. The incision was closed with difficulty. During the closing of the incision, another rise in blood pressure was noted.

The postoperative convalescence was marked by gas pains and distention, insomnia and some febrile reaction. The day following the operation the patient complained of abdominal pain, which was due presumably to distention. This continued for four days. The patient sat up in a chair on the sixth day and was dismissed from the hospital on the ninth day.

During the convalescence the blood pressure was 118 systolic and 80 diastolic. The temperature ranged from 99.6 to 101.2 F., the pulse from 80 to 100. Since returning home he has eaten well, slept well and had normal bowel movements and a good appetite. The wound healed primarily. He began some work at his office, August 1 and has continued at work without difficulty.



Blood pressure (solid lines), and pulse (broken line): *A*, incision; *B*, closure.

After having written to several authorities on spinal anesthesia, we have come to the conclusion that the mechanism of this reaction is perhaps most clearly explained by Dr. L. F. Sise[3] of Lahey's Clinic. He believes that the anesthetic did not get entirely within the dura. A light anesthesia resulted. Therefore, motor paralysis and muscular relaxation were not sufficient. The full dose of ephedrine not being counterbalanced by the full action of the spinal anesthesia would produce the marked rise in blood pressure.

Even though we believe that the spinal anesthesia was given correctly, e. g., the lumbar puncture was done without difficulty and a free flow of spinal fluid obtained at once, Dr. Sise's explanation would seem plausible.

1010 Professional Building.

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[1] McKittrick, L. S.; McClure, W. L., and Sweet, R. H.: Surg. Gynec. Obst. **52**: 898 (April) 1931.

[2] Burch, J. C., and Harrison, T. R.: Surg. Gynec. Obst. **52**: 953 (May) 1931.

[3] Sise, L. F.: Personal communication to the authors, July 27, 1931.

Council on Physical Therapy

The Council on Physical Therapy of the American Medical Association has authorized publication of the following article.
H. A. Carter, Secretary.

SOURCES OF RADIATION AND THEIR PHYSICAL CHARACTERISTICS

COLD RED RAY AND COLD ULTRAVIOLET RAY LAMPS

W. W. COBLENTZ, Ph.D., D.Sc.
WASHINGTON, D. C.

In two previous communications I[1] described the physical characteristics of sources of ultraviolet (also infra-red) radiation from carbon and from metal arcs; also from incandescent solids, gas flames, and so on.

Recent additions to the physical therapist's armamentarium are the so-called cold red ray and cold quartz ultraviolet ray lamps. The former is a foreign product. The term "cold ray" is a misnomer. Thermal radiation of all wavelengths (whether ultraviolet, visible or infra-red rays), when absorbed, produces heat. The reason that these two sources of so-called cold rays do not have a sensible heating effect and that the burners do not become highly heated is that but little electric power is put into the lamps, and, in turn, but little radiant power is emitted. The germicidal action obtained by ultraviolet rays is a physiologic phenomenon that does not depend primarily on the intensity (energy value) but on the wavelength of the rays to which the organism is sensitive.

DESCRIPTION OF THE COLD RED LIGHT

As pointed out in the preceding papers, but few sources of radiation remain unexploited for therapeutic purposes.

A device that has recently come to my attention is the so-called cold red light emitted by the neon glow discharge tube, familiar to all in the form of the sign-lighting tubes in show windows and street signs.

The intensity of the total radiation emitted by the neon glow lamp is low. It consists of a narrow band of wavelengths in the orange-red part of the spectrum, with a maximum in the region of 650 millimicrons (6,500 angstrom units). Neon emits practically no radiation of wavelengths longer than about 1,000 millimicrons.[2]

If the deep-penetrating rays, in the red and near infra-red, have a specific action on the human skin, it would be more efficient to use a more intense source of these rays. For example, a powerful source of red and near infra-red rays is a 500 watt gas-filled tungsten lamp in front of which is placed a combination filter, consisting of a sheet of red glass to shut out the shorter wavelengths, and a cell of water or a sheet of Corning heat-absorbing glass to intercept the infra-red rays of wavelengths longer than about 1,000 millimicrons. The maximum of the filtered radiation will be in the spectral region of about 700 to 800 millimicrons, with an intensity that far exceeds the ordinary neon glow lamp.

From the clinical tests made by Cramer and Fechner[3] with a neon glow lamp, made for therapeutic purposes, it appears that the cold red ray lamp has but little, if any, specific stimulating effect on the human body.

DESCRIPTION OF THE COLD QUARTZ ULTRAVIOLET LAMP

The quartz mercury arc, described in my previous communications, was of the low voltage type (from 110 to 220 volts), in which the incandescent column of mercury vapor carries a relatively high current, amounting to 4 or more amperes, or from 400 to 600 watts in the burner. As a consequence, the temperature and hence the vapor pressure is relatively high, and the ultraviolet radiation is contained principally in the intense emission lines at 254, 280, 297, 302, 313, 334 and 365 millimicrons.

The intensities of the wavelengths of from 254 to 280 millimicrons are relatively weak as compared with the emission lines at 297 and 302 millimicrons, which have a high therapeutic action (there is practically no action by wavelengths longer than 313 millimicrons), at least in activating ergosterol and in preventing rickets.[4]

In contrast with the previously described quartz mercury arc lamp, which has a relatively high vapor pressure, a low potential and a high amperage, the so-called cold quartz mercury vapor lamp has essentially a low vapor pressure, a low amperage (0.015 ampere) and a high potential (5,000 volts, open circuit) glow discharge, similar to the well known Geissler tubes of glass, to be found in physical laboratories.

The power consumed in the so-called cold quartz mercury vapor lamp is small (about 75 watts in the primary of the transformer, and only about 8 to 10 watts in the lamp) and hence there is no great rise in temperature of the burner.

The Cooper Hewitt vapor lamp (a commercial illuminant in a long tube of flint glass) and the "Uli-Lampe" (in a uviol glass tube, used abroad for therapeutic purposes) are essentially low vapor pressure glow discharge tubes.

It is interesting to note that, by providing suitable ionization, by means of electrons emitted from a hot cathode, only a relatively low voltage is required to excite resonance radiation in the glow discharge through mercury vapor. A typical example of this type of radiation is the new ultraviolet glow lamp, G-1,[5] in a bulb of special glass.

As will be shown presently, practically all the activating radiation from the low vapor pressure glow lamp is contained in the resonance emission line of mercury vapor of wavelength 254 millimicrons (2,537 angstrom units). However, in view of the highly active property of this emission line in producing conjunctivitis the enclosure of the new, G-1, glow lamp is made of Corex-D glass, which intercepts practically all radiation of wavelengths less than 270 millimicrons. In this connection it is relevant to add that when one is working near the cold quartz mercury vapor lamp it is important to wear glasses (clear white crown glasses will answer the purpose) in order to absorb the ultraviolet radiation of wavelength 254 millimicrons, which is so active that conjunctivitis was produced by radiation accidentally shining back of the spectacle lens when the face was exposed sidewise to the lamp.

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[1] Coblentz, W. W.: Sources of Ultraviolet Radiation and Their Physical Characteristics, J. A. M. A. **92:** 1834-1837 (June 1) 1929; **95:** 411-413 (Aug. 9) 1930.

[2] Coblentz, W. W.: Bull. Bur. Stds. **9:** 81-116, 1912.

[3] Cramer, H., and Fechner, G.: Strahlentherapie **39:** 474, 1931.

[4] Hess, A. F., and Weinstock, M.: Proc. Soc. Exper. Biol. & Med. **24:** 759, 1927. Sonne, C., and Rekling, E.: Hospitalstid. **70:** 399 (April 28) 1927. Maughan, G. H.: Am. J. Physiol. **87:** 381 (Dec.) 1928. Bethke, R. M., and Kennard, D. C.: Poultry Science **6:** 290, 1927.

[5] New Ultraviolet Lamps: Tr. Illum. Engin. Soc. **26:** 552 (July) 1931.

PHYSICAL CHARACTERISTICS OF THE ULTRAVIOLET RADIATION EMITTED BY COLD QUARTZ LAMPS

Radiation measurements were made on two types of cold quartz ultraviolet generators (mercury glow lamps): (1) a long slender quartz tube type of orificial applicator and (2) a grid type in an aluminum reflector.

The radiometric measurements were made with the vacuum thermopile and a quartz fluorite achromatic spectroradiometer, regularly employed in such work. No attempt was made to obtain spectrum photographs, because they cannot give quantitative measurements, though if intelligently employed they may show something of the spectral quality of the radiation emitted. For example, spectrum photographs of new, clean applicators usually show emission lines of wavelengths shorter than about 190 millimicrons. However, one applicator type of lamp was brought to my attention that, according to the spectrograms submitted, did not emit (transmit) ultraviolet rays shorter than about 226 millimicrons. Assuming that the ultraviolet spectrograph was functioning properly, it appeared that the absence of ultraviolet rays shorter than 226 millimicrons probably resulted from the fact that, since the walls of the quartz tube forming the applicator were no longer perfectly clear, the short wavelengths were absorbed in their passage through the tube; for it requires but little contamination of the surface of the quartz tube to effect great absorption of the very short wavelength ultraviolet rays.

Cold Quartz Orificial Applicator.—The following data were obtained on a cold quartz orificial applicator operated on 0.013 ampere, and 640 volts, or about 8 to 10 watts in the burner. This particular lamp was operable on two voltages. The intensity of the ultraviolet radiation emitted when the lamp was operated on the higher voltage was 1.6 times that obtained on the lower voltage.

By placing the luminous tube of the cold quartz ultraviolet generator lengthwise, close to the slit of the spectroradiometer, it was found that the intrinsic intensity of the 2,537 angstrom unit line is relatively high, being about 215 microwatts per square centimeter at the surface of the applicator. It was observed also that 96 per cent of the total erythemogenic rays (of wavelengths less than and including 313 millimicrons) was emitted by the resonance line at 254 millimicrons. By means of a thermopile and filter method,[6] it was found that 97.8 per cent of the erythemogenic rays was emitted by the line at 254 millimicrons, which is in good agreement with the preceding test.

Cold Quartz Grid Type Ultraviolet Generator.—Measurements of the ultraviolet radiation emitted by this lamp were made with an achromatic spectroradiometer and a vacuum thermopile; also by a balanced thermopile and filter method.[7]

The lamp was operated on 115 volts, alternating current, and 60 cycles on the primary of the transformer, with 30 milliamperes through the lamp as specified.

Under these conditions it was found that the relative intensities (corrected for absorption in the spectroradiometer [7]) of the short wavelength ultraviolet lines that were measurable at 313, 297 and 254 millimicrons were 45, 14 and 865. From this it follows that about 94 per cent of the total radiation of wavelengths less than and including 313 millimicrons is contained in the resonance emission line at 254 millimicrons. This is a trifle lower than the value obtained for the cold quartz applicator. But in the grid lamp examined, the quartz tubes were not quite so clear as in the applicator, which would reduce the intensity at 254 millimicrons relative to the intensity at longer wavelengths.

The total radiation of wavelengths less than and including the line at 313 millimicrons, at a distance of 25 cm. from the center of the lamp, measured by a new balanced thermocouple and filter method [7] was 186 microwatts per square centimeter.

Physiologic tests [7] were made of the erythemogenic efficiency of this lamp, and a close agreement was found between the observed and the calculated time of exposure to produce a minimal perceptible erythema.

Since the publication [8] of experiments on irradiation of cod liver oil, ergosterol and cholesterol, showing that wavelengths shorter than 280 millimicrons are destructive to vitamin D, the feeling is abroad that it is undesirable to use ultraviolet rays of wavelengths shorter than about 280 millimicrons for therapeutic purposes, and hence, in recent years, therapeutic lamps are generally covered with a glass that eliminates these rays.

The radiation from the quartz mercury vapor glow lamp is predominatingly of wavelengths that have a high germicidal action.[9]

In fairness to the purveyor of the particular make of lamp examined, it is relevant to add that the accompanying literature indicated that the device was being promoted as a germicidal agent. Credit is to be given also for the caution sign on the instrument to "protect the eyes at all times by wearing glasses."

Even after this warning is heeded, accidents are possible, as witness the aforementioned case of conjunctivitis in the outer corner of the eye, caused by radiation passing back of the spectacle lens when the subject was standing with the face exposed sidewise to the lamp.

CONCLUSION

It seems relevant to comment on the great difference in the physiologic action of the ultraviolet rays of wavelengths less than 265 millimicrons in artificial sources (absent in sunlight) as compared with the wavelengths from 310 to 315 millimicrons, which are very intense in sunlight. The ultraviolet rays of wavelengths in the region of 254 millimicrons do not penetrate deeply into the skin, the erythema produced is superficial, and an overexposure of several times the dosage required to produce a minimal perceptible erythema does not produce a blister.

In contrast, if the untanned skin is exposed to the more deeply penetrating rays of wavelengths 310 millimicrons and longer, for an interval that is only slightly longer than the dosage time required to produce a minimal perceptible erythema, a painful blister is produced. This phenomenon was noted by Hausser and Vahle,[10] and more recently by us.[11]

During the past summer, further physiologic tests were made,[12] measured amounts of ultraviolet radiation from artificial sources and from the sun being used. The observed time of exposure to the clear noonday sun (which was in good agreement with the calculated time of exposure based on measurements with a newly designed intensity "dosage" meter) to produce a minimal perceptible erythema was twenty minutes, whereas an exposure of thirty minutes produced a painful burn.

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[6] Coblentz and Stair: Bur. Stds. J. Research **6**: 951, 1931.

[7] Coblentz, Stair and Hogue: Bur. Stds. J. Research **7**: 723, 1931.

[8] Heilbron, I. M.; Kamm, E. D., and Morton, R. A.: Biochem. J. **21**: 78, 1927; J. Chem. Soc. London **268**: 2000, 1927. Bills, C. E.; Honeywell, E. M., and Cox, W. M., Jr.: J. Biol. Chem. **80**: 557 (Dec.) 1928. Wyman, E. T.; Holmes, A. D.; Smith, L. W.; Stockbarger, D. C., and Pigott, Madeleine G.: Does the Irradiation of Cod Liver Oil Increase Its Antirachitic Potency? Am. J. Dis. Child. **34**: 753 (Nov.) 1927.

[9] Coblentz and Fulton: A Radiometric Investigation of the Germicidal Action of Ultra Violet Radiation, Bur. Stds. Sc. Papers **19**: 641, 1924.

[10] Hausser and Vahle: Strahlentherapie **13**: 41-71, 1921.

[11] Coblentz, Stair and Hogue: Proc. Nat. Acad. Sc. **17**: 401-405, 1931.

[12] Coblentz, Stair and Hogue: Bur. Stds. J. Research **7**: 743, 1921.

While these facts are known to a few, it will require a long time to inform the public of the importance of properly timing the sunbath in order to avoid severe burns. In the meantime, office workers, store clerks, and the like will suddenly emerge from their daily routine for two weeks' vacation, and, without any preliminary systematic timing of the exposure of the untanned parts of the body, will bask in the summer sun for hours (instead of from fifteen to twenty minutes) and, as a result, will suffer painful burns that could have been avoided if a warning had been given.

2737 Macomb Street, N.W.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

The Council has authorized publication of the following report. W. A. Puckner, Secretary.

McKESSON'S COPPER-IRON COMPOUND NOT ACCEPTABLE FOR N. N. R.

McKesson's Copper-Iron Compound was presented for consideration by the Council as being of value in the treatment of anemia. The firm gives the following statement of composition: "Copper Caseinate, McK&R (4.87% Cu.), 2.565 grams; Iron Peptonate Merck (17.5% Fe.), 5.700 grams; Sodium Citrate Merck U. S. P. 9.000 grams; Alcohol (grain) 150.000 cc.; Glycerin, 100.000 cc.; Oil of Orange (sweet), 0.160 cc.; Acetic Ether, 0.160 cc.; Vanillin, 0.020 grams; Distilled Water to make 1000.000 cc. Alcoholic strength about 14.25%."

The Council considered the evidence presented by the firm for the value of the product in anemia and found it insufficient to justify the recognition of a copper-iron preparation for widespread clinical use. The paper of M. E. Lewis (The Journal, April 4, 1931, p. 1135) to which the firm referred is favorable as far as the few cases reported are concerned; but further confirmatory clinical evidence is needed. The firm was informed that this confirmatory evidence should come from two or more clinics of recognized standing and that the individual cases should be presented in some detail at least as comprehensively as the cases reported in Lewis's article. The firm has not submitted this further evidence. On the other hand, it has informed the Council that the product is being marketed and has submitted the advertising which is now being used and which makes claims that clinical evidence has shown the efficacy of the product. The submitted circular states, "Clinical evidence submitted in confidence by prominent physicians has supported our experiments in vivo." Such confidential reports do not constitute acceptable evidence. In the advertising circular "A Presentation of McKesson's Copper-Iron Compound for the treatment of Anemias," by W. J. Horn, the referee questions the following statement: "Clinical evidence, likewise, shows that this product is quite efficacious in the treatment of several forms of secondary and primary anemias. In most cases there was an increase in red blood cells comparable to the increase in hemoglobin. In nearly all cases the patients noted remarkable improvement in vitality, appetite and general well-being."

Since the firm has not submitted acceptable evidence to show that the iron-copper preparation offered as McKesson's Copper-Iron Compound is superior to the iron preparations in current use, the Council declared the product unacceptable for N. N. R. because of unwarranted therapeutic claims.

Committee on Foods

The following products have been accepted by the Committee on Foods of the American Medical Association following any necessary corrections of the labels and advertising to conform to the Rules and Regulations. These products are approved for advertising in the publications of the American Medical Association, and for general promulgation to the public. They will be included in the Book of Accepted Foods to be published by the American Medical Association.

Raymond Hertwig, Secretary.

DIAMOND BREAD

Manufacturer.—Mason City Baking Company, Mason City, Iowa.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, 70 per cent short patent flour of Northwest wheat, water, malt syrup, yeast, and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, sucrose, salt, lard and sweetened condensed skimmed milk to make the completed dough, which is cut into pieces of desired weight. The pieces are fermented for a short time, molded into loaf form, panned, further fermented, baked for from thirty to thirty-five minutes, cooled, and wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Chemical Composition (submitted by manufacturer).—

	per cent
Moisture (entire loaf)	37.3
Ash	1.3
Fat (direct ether extraction method)	0.7
Protein (N × 6.25)	8.9
Crude fiber	0.2
Carbohydrates (by difference) other than crude fiber	51.6

Calorics.—2.48 per gram; 70.4 per ounce.

Claims of Manufacturer.—A bread of good quality.

PIXIE STRAINED VEGETABLE SOUP

(Mildly seasoned with salt)

Manufacturer.—Fruit Belt Preserving Company, East Williamson, N. Y.

Description.—Canned vegetable soup of sieved carrots, peas, celery, tomatoes, spinach, potatoes and onions, containing in large measure the mineral and vitamin content of the raw materials used; contains a small amount of added salt.

Manufacture.—Canned carrots, spinach, peas, tomatoes and celery (specially prepared for maximum retention of the natural vitamin content), potatoes and onions are the ingredients used. Fresh potatoes are washed and skinned in a potato peeling machine; are trimmed, inspected and boiled until soft; the potato water is used in the soup. The onions are hand peeled, trimmed and cooked in a closed kettle. The water with its strong onion flavor is discarded. The partially cooked onions are further cooked in fresh water, which is also discarded. The different vegetables in definite proportions are mixed in a closed kettle, cooked, sieved, canned and processed by essentially the same procedure as that described for Sieved Carrots (The Journal, Nov. 14, 1931, p. 1467). A small amount of salt is added.

Chemical Composition (submitted by manufacturer).—

Specific gravity 20 C./20 C	1.03
	per cent
Moisture	91.1
Total solids	8.9
Ash	0.6
Fat (ether extract)	0.03
Protein (N × 6.25)	1.8
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	6.1

Calorics.—0.32 per gram; 9.1 per ounce.

Vitamins; Micro-Organisms; Claims of Manufacturer.—See these sections for Pixie Strained Carrots.

THE JOURNAL OF THE
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SATURDAY, DECEMBER 26, 1931

MALIGNANT CONDITIONS IN RADIOACTIVE PERSONS

Martland,[1] in 1925, reported cases of anemia and of necrosis of the jaw in persons who had been employed in painting watch dials with paint made luminous by the addition of radium, mesothorium and radiothorium. During several years previous to 1924, 800 girls did such work in a New Jersey factory. The girls swallowed small amounts of radioactive paint day after day as a result of pointing the brushes with the lips. Some who had worked for one or more years developed necrosis of the jaw and anemia, from which, up to 1928, thirteen died. Martland, who had followed these carefully, believed toward the end of 1928 that the worst period was over and that, with few exceptions, no more workers would develop radium poisoning. Dial painting was stopped there several years ago. Now, however, another pathologic condition seems to have arisen among the employees who swallowed radioactive paint. Since 1928, rapidly growing osteogenic sarcomas have appeared in at least eight cases. One girl died of sarcoma of the pelvis and of the orbital cavity; another, described as healthy in 1925 although her expired air was radioactive, developed osteogenic sarcoma at the site of a spontaneous fracture of the femur; another dial painter has twice sustained a pathologic fracture of the femur at the same site and sarcoma is suspected, and another former dial painter has recently developed osteogenic sarcoma of the pelvis. Four additional possible cases of sarcoma in former dial painters have come to Martland's[2] attention. These delayed cases of illness passed through the period when necroses of the jaw and anemias were developing in these workers and the present attack on their health is of a different nature. The difference is explained thus: In the early cases, mesothorium, which is physiologically more active than radium, predominated, but enough time has elapsed since their exposure to radioactive substances to allow the mesothorium to diminish in quantity by its own natural decay to below half its former strength. In the late cases which have resulted fatally, only radium, which is less active physiologically than the mesothorium, has been detected, and this has accumulated in the bony skeleton. Gettler, who examined the bones of a dial painter exhumed five years after death, found 0.05 mg. of radium distributed in the skeleton. He estimated that one-fourth ounce of bone from this painter contained $1/50,000$ mg. of radium and that the number of atoms of radium in this amount of bone was fifty billion. One thousand alpha particles per second were ejected from this one-fourth ounce of bone. Alpha particles, which, Martland says, are probably the most destructive agent known to science, consist of nuclei of helium atoms containing two positive charges ejected from the nuclei of the parent radioactive atoms at an initial velocity of from 12,000 to 18,000 miles per second. This destructive bombardment in the bones produces pathologic changes that give rise to anemia and to radiation osteitis and it is these areas of bone in which later sarcomas arise.

Flinn[3] recently suggested a method of treatment that will eliminate radium salts from the organism as well as improve the condition of the bone if continued for sufficient time. His next report of the treatment of radioactive patients is awaited with interest.

The study by Martland and his associates will aid in understanding the effects of other radioactive substances. The high incidence of primary carcinoma of the lungs in the cobalt miners of Schneeberg and in the pitchblende mines of Joachimstahl, and the various lesions produced by external exposure to radium and x-rays, demand investigation. Many of the radioactive substances sold to the public for the cure of various ailments may be dangerous to health. Martland was called to testify against the interstate sale of vials of mesothorium and radium which were to be ingested after being dissolved in water for the cure of disease. If taken as directed, the amount of radioactive substances in them would equal that taken by some of the dial painters. He examined two patients who had taken such water from one to two years; both showed radioactivity when tested by electrometers, and both had extensive necrosis of the upper jaw. Should these waters which are sold to the public contain only emanations in the form of radon or thoron it would be impossible to drink enough to furnish emanation that would be beneficial. Waters containing only emanation, Martland says, are frauds, and he doubts whether they are harmless. In 1926, more than 150,000 emanators were sold on the Pacific Coast. The human body in its normal environment is radioactive, but the normal radioactivity of the body should not be increased if it is presumed that increased amounts of radioactivity may in years produce a malignant condition. The drinking over long periods of time of radioactive waters containing radon, and the drinking of natural radioactive waters, should be discouraged. Martland likewise cautions against the intravenous injection of long lived radioactive elements. Some questions concerning the pathogenesis of cancer are suggested by this study of radioactive persons. May not other forms of malignancy depend on the presence in the body of increased amounts of radioactivity too small perhaps to be detected by present methods?

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[1] Martland, H. S.; Conlon, Philip; and Knef, J. P.: Some Unrecognized Dangers in the Use and Handling of Radioactive Substances, with Special Reference to the Storage of Insoluble Products of Radium and Mesothorium in the Reticulo-Endothelial System, J. A. M. A. **85**: 1769 (Dec. 5) 1925.

[2] Martland, H. S.: The Occurrence of Malignancy in Radioactive Persons, Am. J. Cancer **15**: *2435 (Oct.) 1931.*

[3] Flinn, F. B.: Elimination of Radium Salts from the Human Body, J. A. M. A. **96**: 1763 (May 23) 1931.

SYNOVIAL FLUID

Most textbooks of physiology and biochemistry are singularly silent about the synovial fluid and its origin. Yet this substance is of unquestionable moment to the body in providing assurance of comfort in the movement of joints. It often presents pathologic considerations that are quite tantalizing to the physician who is compelled to deal with them therapeutically. The synovial fluid is sometimes grouped with transudates and exudates that occur in various parts of the body, notably with such fluids as peritoneal or pleural effusions. The composition of the synovia is not constant but differs in rest and motion of the joints that it bathes. There is a notable distinction between the fluid and blood plasma or ordinary lymph, presumably due to a mucin-like substance in the synovia. This serves to explain the wide difference in fluidity and stickiness of fluids within joints which is not commonly encountered in plasma. The exact nature of the mucinous constituent remains unknown. Its existence, however, contributes to the view that synovial fluid is something more than a mere transudate.

In 1926, Fremont-Smith and Dailey[1] of the Harvard Medical School made a comparison of the distribution of chloride and protein in plasma with that in noninfected peritoneal, pleural and synovial effusions. As a consequence they concluded that the equilibrium between plasma and synovial fluid is of the same nature as that between plasma and peritoneal or pleural effusions. Investigations by Kling[2] in New York, however, lead him to the conclusion that the synovial fluid is something more than a mere transudate. The viscosity of normal, and the majority of pathologic, synovial fluids is higher and the range of variation is greater than that found in plasma and exudates. The mucinous substance is recognized to be a physiologic product. Inflammation and irritation tend to increase its output. Normal synovial fluid contains few cells, and they are chiefly synovial lining cells. Different types of leukocytes in various amounts, according to the stage and the degree of the process, are found in inflammatory effusions; trauma brings red blood corpuscles into the fluid. Kling accordingly believes that the structure and the function of the synovial membrane are twofold. One part is built for mechanical binding of the epiphyses constituting the joint; it is the connective tissue capsule, inward and outward. The other part is interposed at the intratesticular surfaces, for the maintenance of smooth motion and lubrication. This is the function of the intra-articular fat depots, synovial folds and villi and their lining containing actively secreting cells.

Kling points out that the development of the membrane and of the fluid is different in various joints. The secretory element is best developed in the knee joint and less well developed in the wrist and tarsal joints. The primary response to inflammation and irritation of the knee is therefore effusion; that of the wrist, infiltration and pannus formation. This explains, he adds, why the same etiologic factor, for instance, gonorrhea, produces in the same patient a chronic exudative arthritis of the knee joint and an infiltrative and ankylosing process of the wrist. Motion is the natural stimulus for the secretion of synovia, as is food for the secretion of gastric juices. The detrimental effect of immobilization, especially in knee joints, is therefore explained by the interference with this secretion in a joint highly adapted to it.

PHYSICAL EXAMINATION AS AN INSTRUMENT OF RESEARCH

The classification of knowledge is second in importance only to the original collection of data; without the orderly arrangement of facts the interplay of cause and effect in the natural sciences, notably the portrayal of function in biology, would be determined with difficulty. The evaluation of data is greatly facilitated by application of statistical methods. This device, long used by the investigator in public health, is now being effectively applied to other fields of scientific endeavor. However, it is axiomatic that a statistical analysis of a mass of data is only as significant as are the individual observations themselves. Whereas data consisting of objective measurements expressed in standard denominations lend themselves admirably to treatment by the statistician, there are certain types of observations that often form the basis of rather extensive studies and are difficult to bring to the common basis required if comparisons are to be made. Data obtained by numbers of thoroughly reliable and capable individuals but dependent on the interpretation of the person making the observation fall into the latter category.

An equitable evaluation of the limitations of the physical examination as an instrument of research has recently been made by Britten.[1] Ordinarily a physician

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[1] Fremont-Smith, F., and Dailey, Mary E.: Studies in the Distribution of Chloride and Protein Between Plasma and Synovial Fluid, J. Biol. Chem. **70**: 779 (Nov.) 1926.

[2] Kling, D. H.: The Nature and Origin of Synovial Fluid, Arch. Surg. **23**: 543 (Oct.) 1931.

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[1] Britten, R. H.: Pub. Health Rep. **46**: 1671 (July 17) 1931.

makes a physical examination for the specific purpose of helping an individual patient; he is on the watch for definitely pathologic conditions which obviously affect the health of the patient. Doubtless minor degrees of structural or functional impairment are noted and may or may not be mentioned. After the probable major difficulty has been located, the abnormalities on the borderline of significance often receive little attention. However, statistical results are influenced largely by the apparently insignificant deviations from the normal since they constitute the majority. It thus happens that certain types of research of considerable importance in matters of public health depend finally on the uniformity of interpretation by examining physicians. When, for instance, the investigation deals with the influence on health of the temperature and humidity of the air in certain industrial plants, not only the mortality and incidence of sickness but also the physical examination becomes of great significance. Almost no two physicians of equal training, ability and experience will proceed in the same way or attach the same interpretation to their observations. Conditions which one examiner reports within the normal range may be reported as mild or severe by another. Quantitative determinations may be reported in standard denominations, yet the differences in interpretation of what values fall within and what without the normal variation may alter the final conclusions to be drawn from the data. When these cases in point are multiplied many times, as in a nation-wide study of problems of public health, it is obvious that there is a likelihood of differences due largely to the standards of the examiners being incorrectly attributed to factors peculiar to the industry under investigation.

In an effort to obtain greater uniformity of procedure and to enhance the significance of the results of the physical examination, Britten has suggested some principles along which progress might be made. The examiner should, if possible, proceed without knowledge of whether the subject is normal or not; evidence should appear in the report that the condition in question has at least been looked for; some standard scheme for evaluation of degrees of variation from the normal should be established, though it finally devolves on the examiner himself to decide whether or not a condition is pathologic. Since it is necessary that these degrees of abnormality be uniformly understood by all examiners, a definite set of instructions and a short but intensive training in the details of the examination should be given. Not only should a thorough history be obtained but allowance should be made for the presence of an acute condition during the examination and, if possible, the examination repeated after the acute condition has subsided. In an effort to stimulate thoroughness, a minimum time required for the examination should be established.

The foregoing discussion emphasizes one of the problems that have grown out of the expansion in the work of the public health service. It seems reasonable to expect that, in order to obtain results of significance in those investigations depending on the results of physical examinations, this procedure must be standardized to a greater degree than it has been heretofore. This general thesis should, however, be applied with care. While group investigation will doubtless require more or less standardization of procedure on the part of the members of the group, the art and science of medicine will probably be furthered in the future, as it has been in the past, largely by efforts made in the way peculiar to the individual.

Current Comment

OYSTERS—A PLEASANT TYPE OF THERAPY

The announcement by Hart[1] and his collaborators at the University of Wisconsin three years ago that copper is effective in supplementing iron in the cure of anemia produced by an exclusive milk diet in the rat promptly aroused the interest of the medical profession. Despite the importance of this discovery it must be admitted that the inferences hastily drawn by others than the investigators themselves have led to not a little confusion and mistaken advice. The work of Hart referred specifically to a unique type of nutritional anemia in a laboratory animal. There has been no warrant whatever in applying the observations without reservation to some of the unusual conditions of the blood, such as pernicious anemia in man, that have until recently been so baffling to the physician. At the moment there is some debate as to whether copper stands alone in the capacity to promote the function of the indispensable iron in hemoglobin and blood cell formation. Other elements, such as manganese and germanium, are clamoring for equal recognition. Meanwhile all sorts of new products containing both iron and copper are being commercially exploited and foisted not only on an ignorant public but also on an uncertain medical profession, although the Council has reported that the use of copper and iron mixtures lacks sufficient clinical supporting evidence (see page 1967, this issue). The chief objection to such unproved therapy is that a sense of security in the use of some drug leads to the neglect of other modes of therapy that may be far more effective. Many persons assume that copper is a scarce element in our foods, just as iron was formerly assumed to be. The facts are that both elements are more ubiquitous than might be anticipated. Illustrations of this are coming to light in rapid succession. The question Have you had your iron today? no longer conjures up the picture of raisins, which have distressed more than one person through overindulgence. Oysters, for example, have just been shown by Levine, Remington and Culp[2] to be capable of curing the nutritional anemia of milk-fed rats. The presence of copper in the oyster is not new knowledge. The studies indicate that the inorganic elements present in the oyster are responsible for its hemoglobin regenerating capacity and that the antianemic potency of the oyster can be accounted for on the basis of its content of the three elements iron, copper and manganese. Other comparable discoveries are likely to follow, making the administration of copper a gustatory delight rather than the mere ingestion of "a dose of medicine."

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[1] Hart, E. B.; Steenbock, Harry; Waddell, J., and Elvehjem, C. A.: J. Biol. Chem. 77: 797 (May) 1928.

[2] Levine, H.; Remington, R. E., and Culp, F. B.: The Value of the Oyster in Nutritional Anemia, J. Nutrition 4: 469 (Nov.) 1931.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts from 2:25 p. m. to 2:30 p. m. on Monday, Wednesday and Friday over Station WBBM (770 kilocycles, or 389.4 meters), of the Columbia Broadcasting System.

The program for the week is as follows:

December 28. Common Sense and the Open Window.
December 30. New Hazards for Old.
January 1. No broadcast.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Lectures on Medical History.—Prof. Henry E. Sigerist, Institute of the History of Medicine, University of Leipzig, Germany, will give two lectures on medical history, January 12-13, in Lane Hall, San Francisco. The first lecture will be on "Problems and Methods of Historical Pathology," and the second, "The Social Aspects of Medicine." The historical section of the Lane Medical Library, Stanford University School of Medicine, will be dedicated, January 11. Dr. William Ophuls, dean of the school of medicine, will give the introductory remarks; Dr. Emmet Rixford, emeritus professor of surgery, will speak on "Development of the Historical Section of the Lane Medical Library," and Dr. Sigerist, "Relation of History of Medicine to Practice."

Food Poisoning Reported.—One hundred and eighty-one cases of food poisoning were reported during the last month, according to the state department of health, December 5, of which 175 occurred following a high school banquet held in Willows, attended by about 200 mothers and daughters. Those who were affected had eaten creamed chicken, which had been prepared earlier in the day and heated just before serving. About sixty pupils in the domestic science class had handled the chicken in the preparation of the dish. The bulletin of the health department stated that it is probable that arsenic caused the poisoning in the remaining six cases in Santa Monica. These victims had eaten fresh mustard greens, in samples of which laboratory examination revealed the presence of a considerable amount of arsenic. The poison had probably been used in a spray for the destruction of insects.

Society News.—Dr. Anton J. Carlson, Chicago, addressed the Los Angeles County Medical Association, December 22, on "Rôle of the Nervous System in Gastro-Intestinal Functions and Disorders." Dr. Carlson also addressed the Los Angeles Clinical and Pathological Society, December 21, on "Present Status of the Problem of the Endocrines."——Dr. Clinton H. Thienes, Los Angeles, addressed the Los Angeles County Heart Association, December 21, on "Practical Use of Digitalis and Quinoidine in Heart Disorders."——At the meeting of the Society of Neurology and Psychiatry, December 16, the speakers were Drs. Martin G. Carter and Leo J. Adelstein, Los Angeles, on "Psychosis: Its Importance as a Presenting Symptom of Brain Tumor"; Dr. Cyril B. Courville, Los Angeles, exhibited specimens of bone tumors.——Dr. Emmet Rixford, San Francisco, addressed the San Diego County Medical Society, December 8, on "Chinese Native Medicine."——The Alameda County Medical Association was addressed, December 21, by Dr. Nathaniel A. Cary, Oakland, on "Compression Fracture of the Spine with New Method of Treatment"; Mr. Hartley F. Peart also spoke on "Some Legal Aspects of the Practice of Medicine."

COLORADO

Portrait of Dr. Sewall Unveiled.—At a testimonial dinner given by the Medical Society of the City and County of Denver, December 3, a portrait of Dr. Henry Sewall was unveiled and formally presented to the society by Dr. Harry J. Corper. Dr. Frank W. Kenney, secretary of the board of trustees of the society, made the speech of acceptance. Dr. James R. Arneill was toastmaster. Other speakers included Drs. John W. Amesse, president of the society; Gerald B. Webb, Colorado Springs, and Donald C. Balfour and Harold E. Robertson, both of Rochester, Minn. Dr. Sewall, who is 76 years of age, is professor emeritus of medicine, University of Colorado School of Medicine. Among former positions held by Dr. Sewall were those of assistant fellow and associate in biology at Johns Hopkins University, professor of physiology at the University of Michigan, and secretary of the Colorado State Board of Health. In 1926 he was president of the National Tuberculosis Association; in 1930 the association awarded him the Trudeau Medal in recognition of his work on tuberculosis. He also received in 1931 the Kober Medal, awarded by the Kober Foundation.

DELAWARE

Health at Wilmington.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million, for the week ended December 12, indicate that the highest mortality rate (19.1) appears for Wilmington, and the rate for the group of cities, 11.3 The mortality rate for Wilmington for the corresponding period last year was 14.7, and the group of cities, 11.7. The annual rate for eighty-two cities for the fifty weeks of 1931 was 11.8, as against a rate of 11.9 for the corresponding weeks of 1930. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits, or that they have a large Negro population, may tend to increase the death rate.

DISTRICT OF COLUMBIA

Tumor Clinic Established.—A tumor clinic was formally opened at Providence Hospital, Washington, November 5. Its purpose is the prevention, diagnosis and treatment of cancer and allied conditions among the poor of the city and the dissemination of information on the subject to the public. The clinic is under the direction of Dr. Casimir F. X. Leibell. It is planned to have frequent consultations by members of the staff, thus bringing to bear on every cancer patient the advantages of group diagnosis.

Plans for Antituberculosis Work.—At a meeting of the Washington Tuberculosis Association, November 24, ways of meeting the increasing necessity for antituberculosis work were discussed. The $50,000 approved for the 1932 budget is the largest ever appropriated for this work. A program of health lectures for adults will be extended to every field of industry, and a survey of existing conditions will be made to pave the way for more clinical examinations, more hospital facilities, and the discovery and correction of tuberculous tendencies. Work will be centered around the new Children's Tuberculosis Sanatorium. Speakers at the meeting included George A. Hastings, administrative secretary to President Hoover; Thomas A. Kidner, consulting architect, New York; Dr. Joseph A. Murphy, chief medical inspector of District public schools, and Dr. Kendall Emerson, managing director, National Tuberculosis Association, New York.

ILLINOIS

Society News.—Dr. Leo M. Czaja, Chicago, addressed the Adams County Medical Society, Quincy, December 14, on "Maggot Treatment of Osteomyelitis."——At a joint meeting of the physicians from Randolph, Perry, Monroe and Jackson counties, December 9, Dr. Robert F. Lischer, Mascoutah, spoke on "The Country Doctor," and Dr. William T. Coughlin, St. Louis, "Cancer of the Breast."——Dr. Plinn F. Morse, Detroit, addressed the Winnebago County Medical Society, Rockford, December 7, on bone diseases.——A recent meeting of the Ogle County Medical Society was addressed, among others, by Dr. Roswell T. Pettit, Ottawa, on present treatment of carcinoma.

Chicago

Fellowship in Neurology.—Dr. and Mrs. William H. Wilder, Sr., have established the William H. Wilder, Jr., fellowship in neurology at the University of Chicago, in memory of their son, a student in neurology at the university, who was drowned last summer. The fellowship is to be awarded to a student of neurology nominated by the department of anatomy on recommendation of the professors in charge of neuroanatomy and clinical neurology. Mr. Paul G. Roofe has been appointed the first recipient of this fellowship.

Surgeon General Guest of Honor.—Dr. Robert U. Patterson, surgeon general, U. S. Army, Washington, D. C., will be guest of honor and principal speaker at the annual meeting and dinner of the Medical Department Sub-Chapter, Cook County Chapter, Reserve Officers' Association of the United States in the Drake Hotel, January 6. Other guests of honor will include Major Gen. Frank Parker; Col. Paul C. Hutton, surgeon, sixth corps area; Dr. Arthur D. Black, dean, Northwestern University Dental College; Dr. William H. G. Logan, dean, Chicago College of Dental Surgery, and Dr. Morris Fishbein, editor of The Journal. All medical reserve officers of the sixth corps area, which includes Michigan, Wisconsin and Illinois, are invited to the dinner.

Society News.—At the middle section meeting of the American Laryngological, Rhinological and Otological Society, January 5, the speakers will include Drs. Edward H. Cary, Dallas, Texas, on "The Future of Private Otolaryngological Practice"; Chevalier Jackson, Philadelphia, "Pins at the Periphery of the Lung"; John W. Carmack, Indianapolis, "Maxillary Sinusitis with Blood Stream Infection"; William V. Mullin, Cleveland, "Allergy"; Edmund Prince Fowler, New York, "Prevention of Deafness"; William E. Grove, Milwaukee, "Brain Abscess with Peculiar Bacteriologic Findings"; Edward D. King, Cincinnati, "Nasal Plastic Surgery"; Louis E. Brown, Akron, presentation of new instruments. At a joint meeting of the Chicago Laryngological and Otological Society, Chicago Tuberculosis Society and the Chicago Medical Society, January 4, Dr. Chevalier Jackson will speak on "Suppurative Disease of the Lung Following Operations Involving the Upper Air Passages." Dr. Austin A. Hayden is chairman of arrangements for the meeting.——Dr. Hugh McCulloch, St. Louis, will address the annual meeting of Sunset Camp Service League, January 19, on "Convalescent Homes from the Medical Viewpoint."

INDIANA

Personal.—Dr. Max A. Bahr has been reappointed superintendent of the Central State Hospital, Indianapolis, for the ninth consecutive time, it is reported; Dr. Bahr has been connected with the institution for thirty-two years in various capacities.——Dr. John J. Rife, Boston, recently celebrated his ninetieth birthday; Dr. Rife is still in the active practice of medicine.

Society News.—Dr. Frank C. Walker, Indianapolis, addressed the Hendricks County Medical Society at Danville, November 20, on "Pelvic Cellulitis."——The Montgomery County Medical Society was addressed at Crawfordsville, November 19, by Dr. Mark H. Mothersill, Indianapolis, on "Recent Research in Anemias."——Dr. George Elmo Moses, Worthington, addressed the Greene County Medical Society, Linton, November 12, on constipation.——Dr. Carl A. Hedblom, Chicago, addressed the La Porte County Medical Society at Michigan City, November 19, on "Abscess of the Lung."——The fifteenth annual meeting of the Indiana Academy of Ophthalmology and Otolaryngology was held in Terre Haute, December 9; the guest speaker was Dr. Bernard J. McMahon, St. Louis, on "Progress in Histopathology and Treatment in Otolaryngology."——At a joint meeting of the Fifth District and Vigo County medical societies, November 10, in Terre Haute, Drs. Joseph H. Weinstein and James F. Spigler talked on the "Shoulders resolution," concerning hospitalization of war veterans, and "Abnormal Intestinal Rotation," respectively.——Dr. Herman M. Baker, Evansville, addressed the Gibson County Medical Society, Princeton, November 9, on "Diagnosis and Treatment of Coronary Disease."——The Floyd County Medical Society was addressed in New Albany, November 13, by Dr. Louis Wallace Frank, Louisville, Ky., on cancer.——At the November 12 meeting of the Tippecanoe County Medical Society, in Lafayette, Dr. Charles A. Elliott, Chicago, spoke on "Circulatory Failure in Acute Infectious Disease."——Dr. Cecil L. Rudesill, Indianapolis, addressed the Lawrence County Medical Society, Bedford, November 4, on "Diet in Gastro-Enterology."——At a meeting of the Indianapolis Medical Society, December 15, Dr. Palmer Findley, Omaha, spoke on "Better Obstetrics." Dr. Max A. Bahr addressed the society, December 8, on "Psychiatry in Relation to Crime." The program at the December 1 meeting consisted of case reports.——The St. Joseph County Medical Society was addressed at South Bend, November 18, among others, by Dr. Norman F. Miller, Ann Arbor, on "Bleeding During Third Trimester of Pregnancy."

MARYLAND

Portrait Presented to Faculty.—A portrait of the late Dr. Hiram Woods, Baltimore, was presented to the Medical and Chirurgical Faculty of Maryland, November 17, at a meeting of the Osler Historical Society in the faculty's building. Dr. Lewellys F. Barker made the presentation, and Dr. James M. H. Rowland, president, accepted the portrait on behalf of the medical faculty. Dr. Henry E. Sigerist, professor of the history of medicine, University of Leipzig, gave an address. Dr. Woods died in January. He was a former member of the House of Delegates of the American Medical Association and chairman of the Section on Ophthalmology.

Society News.—Dr. Russell L. Cecil, New York, addressed the annual meeting of the Baltimore City Medical Society, December 4, on "Diagnosis and Treatment of Lobar Pneumonia." Dr. Lay Martin, Baltimore, among others, addressed the society, December 17, on "Early and Late Effects of Nonspecific Protein on Duodenal and Gastric Ulcer."——The Baltimore County Medical Association was addressed at Towson, November 18, by Drs. A. Harry Finkelstein on "Childhood Type of Tuberculosis," and William A. Bridges and John E. Murphy, "Adjuncts to the Routine Treatment of Tuberculosis."——A symposium on the toxemias of pregnancy, the experimental studies in the diagnosis of pregnancy and analgesia in the practice of obstetrics formed the program at the meeting of the West Baltimore Medical Association, November 17; the speakers were Drs. Louis H. Douglass, Alan F. Guttmacher and Francis L. Badagliacca.

The De Lamar Lectures.—Following is the list of the De Lamar lectures given at Johns Hopkins University, together with the names of the speakers:

November 10: Dr. Rolla E. Dyer, acting director, National Institute of Health, Washington, D. C., "Typhus-Rocky Mountain Spotted Fever Group of Diseases."

December 1: Dr. Victor G. Heiser, associate director, International Health Division of the Rockefeller Foundation, "Disease Control and the League of Nations."

December 15: Edgar Sydenstricker, director, division of research, Milbank Memorial Fund, "Statistics of Morbidity."

January 12: Arthur I. Kendall, Dr.P.H., professor of research bacteriology, Northwestern University Medical School, "Filtrability of Bacteria."

February 15: Dr. Charles Armstrong, surgeon, U. S. Public Health Service, "Complications of Smallpox Vaccination."

March 1: William H. Taliaferro, Ph.D., professor of parasitology, University of Chicago, "Experimental Studies on Monkey Malaria."

March 8: Dr. Albert G. Love, medical corps, U. S. Army, "Some Aspects of the Vital Statistics of the United States Army and Their Value in Public Health."

MICHIGAN

Dr. Hickey's Memory Honored.—A bronze plaque in bas-relief of the late Dr. Preston M. Hickey, for many years professor of roentgenology, University of Michigan School of Medicine, Ann Arbor, was presented to the university recently. The plaque, the work of Heinz Peter, was given by the American Roentgen-Ray Society, it is reported, and the presentation was made by Dr. Leopold Jaches, New York, president of the society.

Dr. Bruce Appointed Vice President at Michigan.—The board of regents of the University of Michigan has appointed Dr. James D. Bruce vice president in charge of university relations. This is a newly created position, in which Dr. Bruce's duties will be to centralize all requests made to the university for outside aid and help in meeting them so far as the university's resources allow. Dr. Bruce for the last three years has been director of the department of postgraduate medicine.

Medical Society to Have New Home.—The Wayne County Medical Society recently leased the David Whitney house at Woodward and Canfield avenues, Detroit, and plans to occupy it as new headquarters before January 1, it is reported. The society has been in its present quarters in the Maccabees Building for five years. For the present, only the first two floors and the basement in the new headquarters will be used, but plans for later expansion call for the occupancy of the entire building, it was stated.

Society News.—Dr. Sherman Gregg gave the presidential address, December 15, before the forty-eighth annual meeting of the Kalamazoo Academy of Medicine on "Recent Developments in the Diagnosis and Treatment of Poliomyelitis."——Members of the medical societies of Bay, Saginaw and Genesee counties were addressed, November 4, by Drs. Bernard Fantus, Chicago, and Carl F. Moll, Flint, on therapy of colon stasis, and present-day practice of medicine, respectively.——The Sanilac County Medical Society was recently reorganized; Drs. George Evans and Sanford Martin Tweedie, Sandusky, entertained the society at a banquet, November 5, when Dr. Clarence I. Owen, Detroit, spoke on pathology in medicine.——At the meeting of the Montcalm-Ionia Medical Society, November 10, Dr. George L. Leslie, Howell, and Vernor H. Eman, D.D.S., Grand Rapids, spoke on "Diagnosis and Treatment of Tuberculosis" and "Relationship of Dental Infections to Systemic Diseases," respectively.

MISSISSIPPI

Society News. — The Issaquena-Sharkey-Warren Counties Medical Society was addressed, November 10, by Drs. Doctor A. Pettit, Vicksburg, on "Diagnosis and Treatment of Gonorrheal Urethritis, Anterior and Posterior"; Robert H. Foster, "Neurosyphilis"; Walter E. Johnston, Vicksburg, "Edema," and Guy C. Jarratt, Vicksburg, "Mesenteric Lymphadenitis Simulating Appendicitis in Children."——The Delta Medical Society was addressed at Moorhead, October 14, among others, by Dr. Seale Harris, Birmingham, Ala., on "Hyperinsulism and Dysinsulism."——At a joint meeting of the Fifth District Medical Society of Louisiana and the Issaquena-Sharkey-Warren Counties Medical Society in Vicksburg, December 8, Drs. Stanford Chaille Jamison, New Orleans, gave a discussion of certain phases of chronic congestive heart failure; Henry W. Meyerding, Rochester, Minn., spoke on "Treatment of Arthritis with Special Reference to Prevention and Correction of Deformity," and William H. Olmsted, St. Louis, "Secondary Anemia: Present Status of Dietary and Inorganic Therapy."——The Pike County Medical Society was addressed in McComb, November 5, by Dr. Elise M. Rutledge on "The Menace of Psychiatry," and Dr. Robert H. Brumfield gave a report on hypnosis by barbital derivatives.——At a joint meeting of the North Mississippi Medical Society and the Northeast Mississippi Thirteen County Medical Society recently, Drs. George R. Livermore, Memphis, Tenn., and Oscar W. Bethea, New Orleans, among others, spoke on "Significance of Pus and Blood in the Urine" and "Recent Advances in the Diagnosis of Diseases of the Chest," respectively.——Dr. W. D. Beacham, Hattiesburg, has resigned as health officer of Forrest County after nine years' service.

MISSOURI

Dr. Ravold Honored.—A special meeting was held at the St. Louis Medical Society, December 12, by friends of Dr. Amand N. Ravold in recognition of his completion of fifty years in the practice of medicine. A plaque of Dr. Ravold was presented by Mr. Victor Holm. Dr. Augustus C. Pohlman, Washington University School of Medicine, extended greetings; Arthur I. Kendall, Dr.P.H., department of research bacteriology, Northwestern University Medical School, Chicago, gave an address on "Fifty Golden Years"; Dr. William W. Graves, "Amand Ravold the Builder," and Dr. Joseph Grindon, "Amand Ravold the Man."

Dental Society Celebrates Anniversary.—The St. Louis Dental Society observed its seventy-fifth anniversary at a meeting, December 7-9, in the Hotel Jefferson. According to the *Bulletin of the St. Louis Medical Society*, this is the oldest local dental society in the United States. Included on the scientific program were Dr. Charles H. Mayo, Rochester, Minn., "Organized Effort and Dentistry's Place in the Sun"; Weston A. Price, D.D.S., Cleveland, "A New View of Health and Disease, Including Dental Disease, Based on a Rise and Fall in the Levels of Life with Cycles in Vitamin Tides"; Ura G. Rickert, D.D.S., Ann Arbor, "Dental Diagnosis, with Special Reference to Certain Difficult Aspects Associated with the Focal Infection Problem"; Dr. Theodor Blum, New York, "Mixed Tumors of the Palate"; Paul R. Stillman, D.D.S., New York, "Discussion of the Problems of Periodontal Disease"; George E. Morgan, D.D.S., Milwaukee, "Care of Children's Teeth," and Larkin E. Stark, D.D.S., El Paso, Texas, "Evolution of Human Dentition."

Society News.—At the meeting of the St. Louis Medical Society, December 15, Drs. Harvey S. McKay and Ralph M. S. Barrett spoke on "One Year's Experience with Some of the Newer Methods of Producing Surgical Anesthesia," and Dr. Drew W. Luten, "Points of Special Interest in Coronary Occlusion—Analysis of Cases."——Dr. Frank C. Mann, Rochester, Minn., addressed the Kansas City Academy of Medicine, December 18, on "Physiologic Aspects of Hepatic Insufficiency."——A symposium on endocrine disturbances and allergy in relation to disease of the eye, ear, nose and throat featured the December 17 meeting of the Kansas City Society of Ophthalmology and Oto-Laryngology; the speakers were Drs. Albert D. Ruedemann, Cleveland; Arthur W. Proetz, St. Louis; William W. Duke and William Merritt Ketcham.——Methods of thrift, savings and investments featured the meeting of the Jackson County Medical Society, Kansas City, December 15; the program was furnished by representatives of the Kansas City Real Estate Board, Kansas City Life Underwriters Association, Kansas City League of Building and Loan Companies, and the Kansas City Board of Trade and the Stock and Bond Exchange.

NEW YORK

Personal.—Dr. Don M. Griswold, formerly associate professor of hygiene, State University of Iowa College of Medicine, Iowa City, and commissioner of health in Iowa, has been provisionally appointed consulting epidemiologist in the division of communicable diseases of the state department of health.

Society News.—The Suffolk County Medical Society held its one hundred and twenty-fifth annual meeting, October 29. Dr. Walter Truslow, Brooklyn, spoke on "Treatment and After-Care of Poliomyelitis."——Dr. George W. McCoy, director, National Institute of Health, Washington, D. C., addressed the Buffalo Academy of Medicine at its annual banquet, November 18, on tularemia, psittacosis and pellagra.——Dr. Donald Guthrie, Sayre, Pa., addressed the Seneca County Medical Society, Willard, October 8, on "Early Diagnosis and Treatment of Intestinal Obstruction."——Dr. Emily Dunning Barringer, New York, addressed the Tompkins County Medical Society, Ithaca, November 17, on "Complement Fixation Test for Gonorrhea in Women."

New York City

Uncommon Reportable Diseases. — The bulletin of the department of health recently listed by years the cases of rare reportable diseases that have occurred in New York City since 1920. For 1930 the table shows 14 cases of typhus fever; 8 of undulant fever; 82 of malaria; 2 of smallpox; 2 of yellow fever (laboratory infections); 9 of leprosy; 2 of anthrax; 1 of rabies; 2 of pellagra; 2 of hookworm; 21 of trichinosis; 1 of tularemia, and 19 of psittacosis. Only three deaths occurred among these, all as a result of psittacosis.

Hospital News.—A weekly clinic for the treatment of diseases of the thyroid gland has been opened in the outpatient department of the Fifth Avenue Hospital by the medical and surgical departments, with Drs. Charles W. Lester and Joseph Lintz in charge.——The new six-story building of the Lutheran Hospital was opened with cornerstone ceremonies, October 25; the total capacity of the hospital is now 160 beds.——The board of estimate has appropriated $2,750,000 for the enlargement of the Cumberland Street Hospital, Brooklyn.——Dr. Walter E. Dandy, associate professor of clinical surgery, Johns Hopkins University School of Medicine, Baltimore, delivered a lecture at the Hospital for Joint Diseases, December 16, on "Sciatica and Backache from a Neurological Standpoint."

Gifts to Columbia.—Gifts amounting to more than $20,000 have recently been presented to Columbia University for research and other medical purposes, as follows: $10,000 for research in biologic chemistry and $950 for research in bacteriology from the Chemical Foundation; $5,000 for the special tuberculosis fund, presented anonymously; $1,250 to the department of bacteriology, from Mr. and Mrs. Willis D. Wood; $1,250 for research in acute anterior poliomyelitis under Dr. Frederick P. Gay, from the International Committee for the Study of Infantile Paralysis; $1,000 for research in otology, from Dr. Cornelius G. Coakley; $820 for medical research, from the National Tuberculosis Association; $500 to the Nutritional Research Fund in the department of pathology, from Dr. Alfred F. Hess, and $500 to the department of neurology, from Dr. Moses Allen Starr.

Society News.—Drs. Lloyd H. Ziegler, Albany, and Lewellys F. Barker, Baltimore, addressed the Medical Society of the County of Kings, December 15, on "Neuropsychiatric Problems in Medicine" and "Medical and Other Conditions in Soviet Russia," respectively.——At the meeting of the Medical Society of the County of New York, December 21, addresses were made by Drs. Ward J. MacNeal, on "Use of Bacteriophage in Wound Infections and in Bacteremias"; Fred H. Albee, "Bacteriophage Treatment for Osteomyelitis"; James I.

Farrell, "Mechanism of Prostatic Obstruction," and Joseph F. McCarthy, "Newer Conceptions in the Management of Prostatic Bars and Hypertrophies."——A symposium on surgery was presented before the International and Spanish-Speaking Association of Physicians, Dentists and Pharmacists, December 18, by Drs. William S. Bainbridge, on surgery of the uterus; Eugene H. Pool, the spleen; Howard Lilienthal, the lungs, and Leo Winter, D.D.S., the jaw.——Dr. Hugh H. Young, Baltimore, addressed the Ocean Medical Society, Brooklyn, December 21, on "Problems in Diagnosis and Treatment of Prostatic Diseases."——Drs. Leo M. Davidoff and Maximilian A. Goldzieher addressed the Bronx County Medical Society, December 16, on "Disease of the Pituitary with Special Reference to Tumors" and "Rôle of the Adrenals in Health and Disease," respectively.

OHIO

Hospital News.—A. O. Fonkalsrud, Ph.D., formerly superintendent of the Sioux Valley Hospital, Sioux Falls, S. D., has assumed the superintendency of the Mansfield General Hospital.

Annual Public Health Lectures.—The Cleveland Academy of Medicine has begun its second annual series of public health lectures under the Health Education Foundation initiated last April (THE JOURNAL, April 11, p. 1240). Dr. Elliott C. Cutler, professor of surgery, Western Reserve University School of Medicine, Cleveland, delivered the first lecture, December 6, on "What Science Knows About Cancer." The second will be given, January 17, by Dr. Henry J. Gerstenberger, professor of pediatrics at Western Reserve, on "Why Think About Eating?" and the third, March 20, by Dr. Roy W. Scott, professor of clinical medicine at Western Reserve, on "Fighting Death After Forty." In addition to these, a secondary group of lectures will be presented before smaller audiences in outlying sections of the city. Dr. Harry L. Rockwood gave the first of these, December 10, on "Stemming the Tide with Preventive Medicine." A second will be given, January 15, by Dr. Harry V. Paryzek, on "Keeping Well."

Society News.—A symposium on nephritis was presented by Drs. Clinton D. Fife and Michael R. Haley before the Montgomery County Medical Society, Dayton, December 4.——Dr. A. Graeme Mitchell, Cincinnati, addressed the Mahoning County Medical Society, Youngstown, November 17, on "Practical Application of Principles of Nutrition."——Drs. Norris W. Gillette and August H. Schade, Toledo, addressed the Allen County Medical Society, Lima, November 17, on treatment and pathology of goiter, respectively.——Speakers before the Wood County Medical Society, Bowling Green, November 19, were Toledo physicians: Drs. Elmer C. Unckrich on "Infections of the Upper Air Passages"; Alfred P. Hancuff, "Pneumonia Empyema," and Frank B. McNierney, "Infections of the Urinary Tract."——Dr. John Alexander, Ann Arbor, Mich., addressed the Academy of Medicine of Cincinnati, December 7, on "Changing Status of the Surgical Treatment of Pulmonary Tuberculosis." Dr. Austin A. Hayden, Chicago, addressed the academy jointly with the Cincinnati Oto-Laryngological Society and the Cincinnati League for the Hard of Hearing, December 1, as a feature of "Conservation of Hearing Week."——Dr. Charles E. Hauser addressed the Cincinnati Obstetrical Society, December 10, on roentgen-ray diagnosis in gynecology.——Nathan Sinai, Dr.P.H., Ann Arbor, Mich., addressed the annual joint meeting of the Toledo Dental Society and the Toledo Academy of Medicine, December 4, on "The Way of Health Insurance."——Henry F. Vaughan, Dr.P.H., Detroit, addressed the annual meeting of the Academy of Medicine of Cleveland, December 18, on "The Doctor's Practice in the Future."

RHODE ISLAND

Society News.—Speakers at the monthly meeting of the Providence Medical Association, December 7, were Drs. Anthony Corvese, on "Acute Perforation of Peptic Ulcer"; Howard K. Turner, "Seminal Vesicles as Foci of Infection" and William A. Horan, "Treatment of Fractures at the Hip Joint."

Dr. Chapin Retires.—Dr. Charles Value Chapin, superintendent of health of Providence since 1884, will retire from active service, January 4. Dr. Chapin was born in Providence nearly seventy-six years ago and received his academic degree from Brown University in 1876 and his medical degree from Bellevue Hospital Medical College, New York, in 1879. He has held teaching positions at Brown, Harvard University Medical School and Massachusetts Institute of Technology. He was awarded the Marcellus Hartley Gold Medal by the National Academy of Sciences in 1928 and was the first recipient of the Sedgwick Memorial Medal of the American Public Health Association. In 1927 he was president of the American Public Health Association. Dr. Chapin has served also as president of the Rhode Island Medical Society and the Providence Medical Association, and was the first president of the American Epidemiological Association. He is the author of numerous works on public health and sanitation and has been a frequent contributor to the literature of public health. The Providence Medical Association at its meeting, December 3, adopted a resolution in which tribute was paid to Dr. Chapin's long and distinguished service. The resolution declares that his greatest achievements lie in his own city, "first, in lifting Providence from a condition of well nigh medieval squalor in 1884 to the hygienic and sanitary perfection of today, and, second, in the founding of our city hospital and its later organization, in which he played so important a part." The resolution continues, "In the world his outstanding contribution to mankind is the revolutionary development of medical asepsis with its application to the control of contagious diseases."

WISCONSIN

Society News.—Members of the Green County Medical Society were addressed, November 10, at Monroe, by Drs. Erwin R. Schmidt on "Surgery of the Breasts"; Ira R. Sisk, "Surgical Injuries of the Ureter," and John W. Harris, "Cancer of the Uterus." All speakers are members of the faculty of the University of Wisconsin Medical School, Madison.——The Wisconsin Urological Society met, December 4-5, in Milwaukee. The program included a symposium on injuries of the urinary tract, with the following speakers: Drs. Robert S. Irwin, Wauwatosa; George H. Ewell, Madison; Walter G. Sexton, Marshfield, and Ira R. Sisk, Madison. Other addresses were made by Drs. Russell D. Herrold, Chicago, on "Debatable Questions in the Management of Gonorrhea in the Male"; Maurice J. Reuter, Milwaukee, "Additions to the Treatment of Syphilis in the Last Decade"; Edward L. Miloslavich, Milwaukee, "Pathology of Bladder Tumors," and Herman L. Kretschmer, Chicago, on "Treatment of Bladder Tumors."——Dr. Irving S. Cutter, Chicago, addressed the Medical Society of Milwaukee County, Milwaukee, December 10, on "The Future of the Practice of Medicine."——Dr. Henry K. Pancoast, Philadelphia, addressed the Roentgen Ray Society of Milwaukee, November 20, on pneumoconiosis.

GENERAL

Simmons an Octogenarian.—Dr. George H. Simmons, Editor and General Manager Emeritus of the American Medical Association, who is wintering at his home in Hollywood, Fla., celebrates his eightieth birthday, Saturday, January 2, 1932. The felicitations of organized medicine are tendered him on this occasion.

Bequests and Donations.—The following bequests and donations have recently been announced:

Neurological Institute of the City of New York, $5,000 by the will of the late Mrs. Minnie E. Young.

Brooklyn Hospital, $50,000 under the newly filed will of the late Warren S. M. Mead.

Burlington County Hospital, Mount Holly, N. J., $10,000 by the will of Mrs. Laura Gaskill Crowell, to found the R. Herbert Crowell Memorial Fund; $25,000 more will revert to this fund after the death of heirs who are to receive the interest from it during their lives; 60 per cent of the estate remaining after deduction of numerous bequests is also to be added to the hospital fund.

Temple University Hospital, Philadelphia, $5,000 by the will of the late Mrs. Flora Mae Albright

St. Luke's and Children's Homeopathic and Babies' hospitals, Philadelphia, $50,000 by the will of John Abbot Maguire.

Memorial Hospital, Roxborough, Philadelphia, $2,000 by the will of Mrs. Augusta B. Krook.

Control of Milk Supplies.—During the eight years' existence of the U. S. Public Health Service's milk program, 444 cities, located in 25 states, have adopted it in a coordinated attempt to improve and unify milk control methods in the country. "Before and after" surveys were recently made of the milk sanitation conditions of 152 of the 444 cities. These surveys disclosed that the raw milk supplies of the 152 cities showed a rating of compliance with the grade A raw milk requirements of the public health service milk ordinance of 64 per cent before the adoption of the ordinance, and 91 per cent after periods of enforcement ranging from several months to six years. The pasteurized milk supplies of the same group showed a rating of compliance with the grade A pasteurized milk requirements of 62 per cent before the adoption of the ordinance and 87 per cent after its adoption. The proportion of milk protected by pasteurization increased from 33 per cent to 45 per cent, and milk consumption increased about 21 per cent. Only 1 of the 444 cities which have adopted the milk ordinance has repealed it, and that city has since reenacted it.

Medical Bills in Congress.—S. 572, introduced by Senator Jones, Washington, proposes to provide that the United States shall cooperate with the states in promoting the general health of the rural population of the United States and the welfare and hygiene of mothers and children. This bill has been referred to the Senate Committee on Commerce. H. R. 4739, introduced by Representative Bankhead, Alabama, proposes to provide for the promotion of the health and welfare of mothers and infants. This bill has been referred to the House Committee on Interstate and Foreign Commerce. H. J. Res. 9, introduced by Representative La Guardia, New York, proposes to create a Board of Medical Survey to examine all medical employees of the United States Veterans' Bureau now receiving retirement pay under the Emergency Officers Retirement Act or drawing compensation for 50 per cent or more disability for the purpose of determining whether the recipients of such compensation are actually entitled thereto. H. J. Res. 23, introduced by Representative Celler, New York, and H. J. Res. 28, introduced by Representative Clancy, Michigan, propose to remove the restrictions now imposed on physicians with respect to the prescribing of medicinal liquor. H. Res. 39, introduced by Representative Arentz, Nevada, proposes to direct the Veterans' Administration to proceed at once with the construction of the veterans' hospital heretofore authorized to be erected in Nevada. S. J. Res. 19, introduced by Senator Smoot, Utah, proposes to provide that the first United States narcotic farm, to be established near Lexington, Ky., shall be named the Stephen G. Porter Institute. S. 136, introduced by Senator Hatfield, West Virginia, proposes that the federal government shall cooperate with the several states in the care, treatment, education, vocational guidance and placement, and physical rehabilitation of persons under the age of 21 years who have some physical defect that may be corrected or improved by surgical and medical care. S. 203, introduced by Senator Howell, Nebraska, proposes to supplement the National Prohibition Act for the District of Columbia and provides, among other things, that any physician or pharmacist in the District who shall be convicted of a second violation of any provision of the National Prohibition Act requiring him to do or to abstain from doing any act in his capacity as a physician or pharmacist shall forfeit his license to practice for one year. S. 310, introduced by Senator Hawes, Missouri, proposes to remove the restrictions now imposed on physicians with respect to the prescribing of medicinal liquor. S. 422, introduced by Senator Bingham, Connecticut, proposes to regulate the use and sale of wood alcohol. S. 423, introduced by Senator Bingham, Connecticut, proposes to amend the National Prohibition Act, as supplemented, to permit physicians to prescribe malt liquors for medicinal purposes. S. 425, introduced by Senator Bingham, Connecticut, proposes to authorize the enlargement of the veterans' hospital in Connecticut. S. 588, introduced by Senator McKellar, Tennessee, proposes to provide that an ex-service man who is shown to have or if deceased, to have had, prior to Jan. 1, 1930, a neuropsychiatric disease, spinal meningitis, an active tuberculous disease, paralysis agitans, encephalitis lethargica, a chronic constitutional disease or analogous disease, or amebic dysentery, developing a 10 per cent degree of disability or more shall be presumed to have acquired his disability in service. S. 624, introduced by Senator McKellar, Tennessee, proposes to safeguard the use of wood alcohol in antifreeze mixtures. S. 695, introduced by Senator Smoot, Utah, proposes to authorize $20,877,000 for additional hospital and domiciliary facilities for veterans of all wars. S. 1201, introduced by Senator Copeland, New York, proposes to amend the federal Food and Drugs Act to provide that a drug is misbranded if it or the ingredients or substances contained in it or the curative and therapeutic effect of such drug or its ingredients or substances are falsely or deceptively advertised, represented or described. S. 1229, introduced by Senator Hull, Tennessee, proposes to require the discoloration of poisons which resemble commonly used foodstuffs. S. 1234, introduced by Senator Robinson, Arkansas, proposes to authorize an emergency appropriation of $3,000,000 for special studies and demonstration work in rural sanitation.

CORRECTION

"Insulin a Protein."—In the editorial on this subject (The Journal, December 12, p. 1803), the footnote cites as publisher of the book "Treatment of Diabetes Mellitus," by E. P. Joslin, the W. B. Saunders Company. This citation is in error. The credit should have been to Lea & Febiger, Philadelphia.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 28, 1931.

The Wellcome Research Institution: A Founder of Many Museums

Lord Moynihan laid the corner-stone of the new buildings for the Wellcome Research Institution. It is intended to maintain the Wellcome Museum of Medical Science, with its special exhibits covering tropical medicine and hygiene, on the ground floor of the new building. University classes and many physicians have made constant use of the old museum. The object is to enable the teaching facilities of the museum and the Wellcome Bureau of Scientific Research, which it serves, to be extended. It is expected that the accommodation heretofore offered by twelve laboratories to students of medical zoology, parasitology, bacteriology and chemotherapy will be doubled. Physiologic and entomologic laboratories will be established. The three floors immediately above the ground floor will be given over to the Wellcome Historical Medical Museum. This museum has the greatest collection of its kind in the world. Special study rooms will now be provided outside the galleries for research workers, who have heretofore been crowded out by the exhibition cases. Lord Moynihan paid a tribute to the forty years' work of Dr. Wellcome in promoting medical research: In 1894 he founded a laboratory for physiologic research in this country, followed two years later by a laboratory for chemical research. On the recapture of Khartoum by Kitchener, he founded a research institute for tropical diseases there, of which the first director was Andrew Balfour, who worked there for twelve years. In 1913 he founded in London the Bureau of Scientific Research and the Historical Medical Museum, in 1914 the Museum of Medical Science, and in 1920 the Entomological Field Laboratory. All these were separate from one another, and the workers lacked opportunities for hour to hour and minute to minute consultation, which would now be possible under one roof. As the result of experiment, medicine was gradually replacing anatomy by physiology. For its advance it depended on the methods of the ancillary sciences, which would be developed in this and similar institutions, in which there might be created "a religion of research." He hoped that in time the discipline of research would be undergone by all who served the hospitals. To advance the science and art of medicine, Dr. Wellcome had done as much as any man in this country.

Sir David Bruce: One of the Founders of Tropical Medicine

At the age of 74, four days after the death of his gifted wife, who greatly assisted him in his scientific work, Sir David Bruce, one of the small band who laid the foundations of tropical medicine, has passed away. Like Ross, he owed much to the teaching and inspiration of Manson, but his ideas and methods were his own. His first great discovery was made in the following manner: A prolonged investigation had failed to disclose the cause of Malta fever until one day he was shown a series of charts relating to possible sources of infection. Goat's milk was among these, and he intuitively seized on this possibility and began to test it. Within a few years he had discovered Micrococcus melitensis and showed that the fever was transmitted by goat's milk, thus enabling a troublesome disease to be stamped out. He next engaged in researches on cholera and methods of immunization. In 1894 the Natal government asked him to investigate nagana and tsetse fly disease, which were supposed to be different conditions. He discovered in two months that they were one disease and due to a trypanosome. Six months later he proved that the tsetse fly was the carrier of the trypanosome. He was the first to show that an insect may carry a protozoan parasite and thus be a source of disease. He studied nagana in a large number of domestic animals and in its latent form in wild animals, leaving little to be added by subsequent observers. In 1903 he was sent by the Royal Society to Uganda to make further investigations into trypanosomiasis, which at the time was being investigated by Castellani. This observer had found a trypanosome in a small number of cases. Bruce at once grasped the situation and stimulated a rapid extension of the observations until evidence was obtained that the organism was the cause of the disease. Later he showed that the tsetse fly, Glossina palpalis, is the carrier of the trypanosome and that the distribution of the former corresponded to that of the disease. During the war he was chairman of the committee on tetanus, which showed the importance of prophylactic injection of antitoxin. He was later chairman of the trench fever committee, when Colonel Byam made the important discovery that the disease is transmitted through the skin by the excreta of the louse. An Australian by birth, Sir David was educated at Edinburgh University and joined the army medical service in 1883. He was assistant professor of pathology at the Army Medical School from 1889 to 1894. He edited the *Journal of the Royal Army Medical Corps* from 1904 to 1908. Many honors were conferred on him, including honorary degrees from the Universities of Glasgow, Dublin, Liverpool and Toronto, and, greatest of all, the fellowship of the Royal Society, which also awarded him a Royal and a Buchanan medal.

Rabies Conveyed by Bats

A mysterious disease which resulted in the deaths of human beings and animals has been reported from southern Trinidad. In his official report to the legislative council, the medical inspector of health, Dr. C. F. Lassale, states that twenty persons died between 1929 and 1931 from an unusual type of ascending transverse myelitis. Dr. Hurst, bacteriologist of the Lister Institute, considers that the disease is due to the virus of rabies of a hitherto unknown type. All the recognized cases were fatal. The report also states that man probably acquired the disease from some biting animal which itself suffers from rabies, but that the animal is not the dog, since the last case of canine rabies occurred in 1914. It was suggested that bats might be concerned in producing the disease in man and in animals. Since this report was issued, Dr. Pawan, the government bacteriologist, has declared that he has found typical rabies lesions in the brain of a Sangre Grande daylight bat.

The Attempt to Alter the Constitution of the Royal College of Surgeons

At the annual meeting of fellows and members of the Royal College of Surgeons the resolution asking for representation of members on the council was brought forward for the forty-third time. The nature of this agitation has been described in a previous letter (THE JOURNAL, February 14, p. 541). This year the resolution was moved by Sir Ernest Graham Little, dermatologist and member of parliament for London University. He pointed out that the college contained 2,000 fellows and 18,000 members; that the governing body, the council, was elected entirely by the fellows, and that no fellow in general practice had been elected. The motion was carried by 32 votes to 3. The president, Lord Moynihan, admitted that the resolution had been supported by very fair speaking, but as the council was doing its duty sincerely in the interests of the whole college he could not offer any hope of the representation desired. By permission of the president a member, Dr. T. Wilson Parry, made a long statement which had received the support of the Society of Members. He thought that some members of the council not unnaturally felt that the proposed representation might involve some disaster to the college. To reassure them he suggested that the members should be permitted to elect one fellow who was a general practitioner and one member also in general practice to represent them on the council, thus safeguarding the traditions of the college at the initial step. Dr. Parry referred to Robert Waring Darwin, the father of Charles Darwin and the great-grandfather of more fellows of the Royal Society than exist in any other family; Jenner, the discoverer of vaccination, and James Mackenzie, the founder of modern cardiology, who were all general practitioners. But these interesting facts are as irrelevant as the usual ground of "justice," on which the members' demand is usually based. The college is a scientific and educational body governed by the eminent men of British surgery elected by all its constituents who are surgeons in the full sense of the term. Its government is beyond criticism. The agitation is not inspired by any desire or capacity to improve the functions now so well discharged but rather to drag the college into medical politics.

New Heart Department at the London Hospital

The Heart Department at the London Hospital was originally created for Sir James Mackenzie. It has now been given a new building at a cost of $31,000. There is a tablet recording the fact that it is a memorial to the work of Sir James Mackenzie. At the opening ceremony, Dr. John Parkinson, physician in charge of the department, said that Mackenzie was universally recognized as the founder of modern cardiology. As long ago as 1913 the department had its beds, clinic and laboratory. The London Hospital was the first of the general hospitals in the world to arrange such a special department for the advancement of this great branch of medicine. Other hospitals had followed, and advance in knowledge and practice had been accelerated.

PARIS

(From Our Regular Correspondent)

Nov. 11, 1931.

Recurrent Fever Substituted for Malaria in Treatment of Dementia Paralytica

Mr. Auguste Marie, who was one of the first in France to treat dementia paralytica by inoculation with malaria, is endeavoring to substitute for the plasmodium of malaria the spirillum of recurrent fever, which provokes the same manifestations of hyperthermia, and he has recently communicated to the Academy of Medicine the results of his observations. He presents this method rather as supplementary to the malaria method. The results obtained were less sure; but recurrent fever therapy appears to him indicated in some instances when malariotherapy is not applicable; for example, in persons who had malaria in childhood, or in dementia paralytica in which malaria has been employed but which shows a recrudescence. In such cases, attempts to reinoculate malaria often fail. To get around immunity that might be a contraindication to reinoculations of recurrent fever, it is sufficient to alternate the different varieties (induced by various organisms: Spirochaeta duttoni, Spirochaeta berbera, and others), including the Spanish type. Recurrent fever has the advantage over malaria that the incubation is shorter, being only from three to five days in place of about twelve days. Recurrentotherapy should be supplemented by treatment combining arsenic, bismuth or mercury compounds. Of a total of 51 patients treated with recurrent fever, 18 were dismissed with a remission more or less complete and permanent; 16 were physically restored but had to be retained in the hospital. Seventeen patients died, ten of them during the first months that followed the inoculation, and the others after a partial remission. The average age of the patients who were dismissed following more or less complete remissions was 35;

the average age of the decedents was 45, while the average age of the patients retained in the hospital after partial remission was 40. At the close of the address, Professor Claude expressed wide reservations as regards this treatment, which, in his opinion, is much less effective than malariotherapy and demands extreme care in applying.

A New Conception of Color Blindness

Dr. Polak presented recently before the Academy of Sciences an account of his research on color blindness. It has been frequently assumed that the dyschromatopsia of persons who are color-blind is confined to the confusion of the colors red and green, and the eye examination to which railway engineers are subjected is planned on that basis. In reality, according to Dr. Polak, the colors that persons who are color-blind confuse are blue, violet, purple and greenish blue, all of which produce the same optic sensation. The confusion of orange and yellowish green is extremely frequent, whereas a confusion of red and green is much less frequent, contrary to the current opinion.

Trachoma in Tunisia

Trachoma is one of the scourges of the French possessions of northern Africa. Last year, the minister of the interior sent a mission to Tunisia to organize a campaign against trachoma. Dr. Talbot, head of the mission, has recently issued a report on the results accomplished over a period of nearly two years. The systematic examination of the school children has shown that the proportion affected at Tozeur is 97 per cent; at Gafsa, 76 per cent, and at Gabes, 53 per cent. The infection occurs chiefly in children under 3 years of age, and the child contracts the disease nearly always through the infected mother. The infection is confined to the preschool age, not a single recent case having been discovered in school children. There has been, therefore, no need of organizing special schools for trachomatous children. It was found, however, advantageous to give the children in the schools daily treatment under medical supervision. The co-worker with the physician is the native or the French teacher. The treatments are given after the last class in the evening, the time required being taken out of the regular school hours. Outside of the school, prophylactic aid is accomplished by means of free dispensaries installed at Gabes, Gafsa and Tozeur. Six woman nurses supplied by the Comité central de l'oeuvre de protection de l'enfance in Tunisia are attached to these dispensaries, and during the forenoon they care for the sick in the dispensaries and during the afternoon they are visiting nurses. They carry on a constant publicity campaign with a view to inducing the female element of the population, the chief source of familial contagion, to present themselves for treatment. The important feature of this social movement—in the schools and in the dispensaries—is the absolutely gratuitous character of the drugs, the treatments and the interventions.

Dr. Guéniot, a Centenarian

Dr. Guéniot, member of the Academy of Medicine, is now in his one hundredth year. Surgeon to the hôpitaux de Paris, he spent nearly his whole life at the Hôpital de la maternité, of which he was the chief obstetrician, at a time when specialists in obstetrics were not yet generally known. It was the time when puerperal fever caused such a high mortality that it became necessary, from time to time, to close the institution for a month by reason of the large number of victims. Guéniot knew nothing of antisepsis in those days and believed in the transmission of the infection by miasmas, or noxious effluvia. For fifty-one years he has been a member of the Academy of Medicine and has served also as president. His health is excellent except for some deafness. His mind is perfectly clear, and he attends regularly all the meetings of the academy, sometimes participating in the discussion if the voice of reason appears to be losing in the debate. He published last year a booklet on how to live to be a hundred years old, in which he set forth that the secret of longevity lies in temperance in all things: eating moderately, drinking moderately, taking some wine every day but only a small quantity, avoidance of overwork, getting a full allowance of sleep, and never ceasing to be occupied with something. At the last session of the academy, the president offered his congratulations. He arose and thanked the president, with still sparkling eye and easy speech. Special ceremonies in his honor will be held next year when his hundredth year has been completed.

Emergency Aid in Cases of Asphyxia

The prefect of police in Paris has created in his administrative area a new emergency service destined to place at the disposal of the population prompt aid in cases of asphyxia by illuminating gas, cesspool gas, submersion or electrical shock. A division of the firemen of Paris has been specially trained to give first aid in these conditions and has been supplied with all the necessary equipment, including masks for the rescuers. At any hour of the day or night the public may appeal, in case of accident, to the prefecture of police by telephone, through a call box on the street, or by applying at the nearest police station.

BERLIN

(From Our Regular Correspondent)

Nov. 9, 1931.

The Amplification of Heart Sounds

With the development of physics and improvements in technic in recent years there has been a desire for better methods of analyzing the heart sounds than is possible by ordinary auscultation. In 1923, Dr. Leo Jakobsohn demonstrated before the Berliner Medizinische Gesellschaft some of the early attempts, and experiments undertaken in the meantime were recently reported before the same society. The physicist Dr. F. Trendelenburg discussed "Physiologic Principles and Physiologic Questions Involved in the Examination and Interpretation of Heart Sound Phenomena." On account of the low intensity of heart sound phenomena, not until recently did it become possible, through the use of high-powered electrical receiving apparatus and static-free amplifiers, to examine sound phenomena in a manner wholly satisfactory to the physicist. The experiments carried out in the research laboratory of the Siemenswerke, and also in a number of institutes and clinics, particularly the IV. Med. Universitätsklinik in Berlin, showed that the most essential components of the heart sounds lie in low tone areas (up to 80 Hertz), whereas the essential components of the diagnostically important heart murmurs lie in higher tone areas (at 300 Hertz and above). The human ear possesses in the high tone ranges great sensitiveness; in the lower ranges its sensitiveness is much less. On comparing the heart sound images recorded by means of the apparatus that functions uniformly in accordance with the laws of physics, with the observations of subjective auscultation, considerable divergences were discovered, which had their basis in the difference between the sensitiveness of the apparatus employed and that of the human ear. To make more easy the comparison of objective results obtained with the scientific apparatus and the results of auscultation, an amplifier was created that possesses to a great extent the qualities of the human ear. This amplifier is affected in its sensitiveness by the pitch, the same as the human ear. The observations of the subjective auscultation can thus be compared at once with the objective records. There is therefore now a possibility of interpreting the origin of the various sound phenomena.

The next speaker, the chief physician of the IV. Med. Universitätsklinik (in the Krankenhaus Moabit), discussed "The Clinical and Didactic Importance of the Objective Examination of

Heart Sounds," and demonstrated sound images of various typical heart sound manifestations and explained their diagnostic importance for bedside practice. Harmonious course of vibrations in a heart tone is characteristic of indurative processes in the vicinity of the site of auscultation, since only tissues with a certain hardness are capable of vibration and can produce a periodic frequency course. For mitral stenosis the wavelike character of the first heart tone is typical. The diastolic murmur in mitral stenosis is registered throughout the whole diastole, although it is usually perceptible in auscultation only during the presystole. All endocardiac murmurs have their chief components in the narrow range between 200 and 400 Hertz units. The Weber theory of the origin of murmurs receives new support from this fact. By reason of the similarity of the sound curves of endocardiac murmurs, one cannot draw from the sound picture any important differential diagnostic conclusions as to their origin. Paracardiac murmurs may, however, be distinctly differentiated from endocardiac murmurs by the greater frequency of interruption of the current as revealed by the course of the curve. The reproduction through loud speakers of heart sounds encounters difficulties, since through marked amplification of sounds subliminal components rise above the auditory threshold and change the nature of the sound. A reproducing apparatus that will overcome this disadvantage will be of inestimable value for clinical instruction.

Finally, the physicist Dr. Sell, who has devoted himself to acoustic problems, explained that a diaphragm which is highly sensitive to body sounds but less sensitive to air sounds, and which possesses a high degree of flexibility, is best adapted to this purpose. If attention is paid to this, no great amplification is necessary. A special loud speaker sensitive to low ranges was constructed. Normal heart tones and heart murmurs become audible, with the new apparatus, for a good-sized audience.

Medical Service on Sunday

For a number of years, the city of Berlin has had not only a special Sunday service as regards the pharmacies but also a special service for urgent medical cases on Sunday. For this purpose, the city is divided into fifty districts, each of which submits, with the opening of each three-month period, a list of physicians who have agreed to perform Sunday duty during the quarter in question. At first, this list lay open for inspection only at the pharmacies, but, later, copies were posted also at the police stations. Now, however, the matter has been further simplified for the public. At the suggestion of the medical league of Greater Berlin, the government telephone service has consented, in response to telephone calls on Sunday, to give the applicant the name of the nearest physician.

Gymnastic Exercise for Women

Gymnastic exercise for women was recently discussed by Professor Sellheim, director of the Leipzig Universitäts-Frauenklinik. In dealing with men, aside from considerations of age, we have to do with only one kind of physical makeup and one mode of functioning of the organism all through life, and can arrange for the strengthening of the physique and for the preservation of robustness by gymnastic exercises by applying what is essentially the same prescription. In dealing with women, one must, in prescribing physical exercises, differentiate precisely between the various types of women with reference to build and the mode of functioning of the organism at the time in question, and only by taking careful account of these differences can one hope to reap the advantages of gymnastic exercise. From the standpoint of gymnastics, eight classes of women must be recognized: (1) the girl approaching puberty and during the years immediately following; (2) the woman during the period of menstruation; (3) the woman during pregnancy; (4) the woman during the puerperium; (5) the woman after cessation of the special functions of the matron and of old age; (6) the woman who is deprived of the privilege of propagation; (7) the woman whose constitution has been undermined by giving birth to too many children, possibly in association with occupational work (these two classes being especially characteristic of the times in which we live), and, finally, (8) the woman with abdominal disease. Specially prescribed gymnastics are more important for women than for men. The more the value of gymnastics comes to be recognized by physicians and the general public, the greater becomes the responsibility of the physician for the sins of omission and commission in this field. There is danger that here the physician may be charged with neglect, and that in case damage results an attempt may be made to hold him responsible.

AUSTRALIA

(From Our Regular Correspondent)

Nov. 4, 1931.

Hospital Finance in New South Wales

The problem of hospital finance in Australia is becoming more acute daily, and in New South Wales the situation is growing serious. The leading hospitals in Sydney, especially the Royal Prince Alfred Hospital, have been on the verge of bankruptcy for the past twelve months. In the Royal Prince Alfred Hospital it has been necessary to close 200 beds and to place many of the paid medical staff on an honorary basis. At best, the hospitals are living a hand to mouth existence in the face of greatly increased demands on their services. Nearly all the New South Wales institutions depend on large annual government subsidies, which in the past have been granted on the basis of £1 for each £1 contributed by the public. Voluntary contributions have fallen away considerably, and the government, moreover, has found it impossible to continue the subsidy, even on a reduced basis. Since the appointment of the Hospitals Commission in New South Wales, the distribution of subsidies has been under its control.

It has always been strange that hospital service should be financed in connection with gambling, but this relationship is apparently the sole remaining exploitable avenue for hospital finance in Australia, and it is being used more and more, as the economic situation becomes more difficult. For many years now in New South Wales, a percentage of the gross proceeds of the totalizers, which are found on all large race courses, has been reserved for hospitals. When funds from this source showed a falling off, the deficiency was made up by heavy taxation on all wagers made with bookmakers. In view of the fact that considerable support was given from New South Wales to a private Tasmanian lottery and to a government lottery in Queensland, the state premier this year passed an act for establishing a New South Wales state lottery in aid of hospitals. This was strenuously opposed by the council of churches, an organization composed of representatives from most of the protestant churches in New South Wales. This council recommended an appeal to church and state. The premier withheld the operation of the state lottery pending the result of this appeal. The appeal was a hopeless failure, and the state lottery has now commenced operations. Today in Sydney will be seen a queue of people a quarter of a mile long, lined up to buy their tickets at 5s. 3d. each, in the hope that they will win the first prize of £5,000. What the actual proceeds from this lottery will be can only be a matter of conjecture. Experience in Queensland, where the "Golden Casket" lottery has been run for some years, is not encouraging. As the result of the holding of twenty-six art unions, the total sum raised for hospital work has amounted to only £190,059. Of every £1 received by the "Casket," 13s. 4d. is absorbed by prizes, taxes, postage and heavy general expenses. It has been the experience in Queensland that the application of gambling methods to hospital finance definitely dries up the springs of charity. As the tickets in the Queensland Golden Casket were largely taken up in New South Wales prior to the establishing of the latter's own lottery, one result will be that the Queensland lottery will receive much less income, and already a marked falling off is apparent. There is little prospect of the total sum raised by the New South Wales lottery being sufficient to meet hospital working expenses and to leave something over for other forms of charities, which are continually approaching the government for contributions to meet their working expenses, their indebtedness, or their needs for new buildings or extended accommodation.

Of late years, the gifts to hospitals in the form of legacies have considerably diminished. This is said to be due to the heavy death duties. Many prefer to give while they are alive whatever amount they intend to spend on charities. They see something for their money before they go hence. One is often surprised, on reading the wills of rich men who leave behind them tens of hundreds of thousands, to note how comparatively seldom are large sums left either for education or for benevolent purposes.

Meeting the Cost of Highway Accidents

As an attempt to solve the problem of the cost of hospital treatment of patients injured by motor vehicles in New South Wales, the Hospitals Commission has recommended that an extra tax of 5s. each on motor cars and 2s. 6d. each on motorcycles be applied. By this means it is expected to raise £55,000 annually. It is proposed that public hospitals be paid 7s. a bed daily for each motor accident case and 5s. a day for motor accident outpatients, and that 6d. a mile be paid to ambulance services for every mile traveled in attending motor accidents. Motoring circles consider that this tax is iniquitous, as it is based on the fallacy that motorists are solely to blame for traffic accidents in which they happen to be involved and as a result of which persons are injured. Statistics collected in Queensland show that, for the year 1930, of the total number of so-called motor accidents, 52.73 per cent were unavoidable by the car drivers, being attributable to carelessness or the infirmity of pedestrians, or to cyclists, road faults or other causes. The experience of the Brisbane General Hospital for the year 1929-1930 was that only 3.8 per cent of the total cases handled were due to vehicular traffic accidents.

Australian Vital Statistics for 1930

A record low death rate and a low infant mortality rate are the two main features of the annual demography bulletin for 1930, which deals with the population and vital statistics of Australia. The infant mortality rate was 47 per thousand; with the exception of the New Zealand rate, this is the lowest in the world. The rate for New Zealand is 34.5. The death rate was 8.59 per thousand of the population. This rate was the lowest ever recorded in Australia and compares most favorably with that of other countries. The principle causes of death were heart diseases, 15.6 per cent; cancer, 11.1 per cent; tuberculosis, 5.9 per cent; acute and chronic nephritis, 5.7 per cent, and pneumonia, 3.5 per cent. The maternal mortality rate was 5.29 per thousand children born. At the end of 1930 the population of Australia reached the total of 6,476,032, which represents a growth of 1,064,735 during the last ten years. To this total gain, natural increase contributed 73 per cent and net migration 27 per cent. The rate of growth during 1930 was 1.81 per cent and is among the highest rates of increase in the world. The birth rate was 19.93 per thousand of population, the lowest ever recorded. Compared with that of many other countries, the Australian rate is low, but fortunately it is accompanied by a low death rate giving a rate of natural increase which is equaled in few countries. Exnuptial births were 4.62 per cent of all births registered. The average family per mother in 1930 was 2.92 as against 2.96 in 1929. The density of population, that is, the number of persons to the square mile, in Australia is only 2.18 and varies from 1 person in 100 square miles in the Northern Territory to 20.38 to the square mile in Victoria.

BELGIUM

(From Our Regular Correspondent)

Oct. 30, 1931.

The Prince Leopold Institute of Tropical Medicine

The Prince Leopold Institute of Tropical Medicine, recently established, has for its purpose the creation and maintenance of a school of hygiene and of tropical medicine, for the training of colonial physicians and sanitary agents; for the study of all problems pertaining to the etiology and the therapeutics of tropical diseases, and to establish laboratories and clinics as annexes of the school. One of the clinics will bear the name "Clinique Léopold II." The courses given in the new institution will be organized in such a manner as to meet the requirements of the curriculum established by the minister of the colonies for physicians in the government service. For the time being, the courses will be given, in keeping with the needs and the possibilities of the situation, in one or the other or in both the national languages. Later on, the institute will adopt whatever arrangements parliament shall decree for the colonial university. The Prince Leopold Institute of Tropical Medicine has been located in Antwerp.

The Public Health Service in the Belgian Congo

Since 1929, the public health service in the Belgian Congo has been an independent department. It is interesting to note the steady increase, during the past twelve years, of the annual budget of the public health service of the Congo region, as shown in table 1.

TABLE 1.—*Increases in the Annual Budget of the Public Health Service of the Congo Region, Expressed in Millions of Belgian Francs*

Year	Budget	Year	Budget	Year	Budget
1919	2.8	1923	11.5	1927	47.5
1920	3.7	1924	15.5	1928	79.5
1921	4.4	1925	22.5	1929	86.5
1922	8.8	1926	32.0	1930	95.0

Table 2 shows the status of the medical personnel in the colony.

TABLE 2.—*Personnel of Government Medical Service and of Private Institutions*

Government Medical Service

Physicians of various grades	136
"Médecins agréés"	24
Physicians with scholarships	1
Pharmacists	7
Dentists	1
Sanitary agents	102
Laywomen nurses	17
Nurses, members of religious societies	103
Aids (natives)	3,146

Medical Services of Private Institutions

	Physicians	Sanitary Agents	Laywomen Nurses
Red Cross	2	2	2
Private societies	97	42	29
Private physicians	1	..	..
Physicians of national missions	11	..	..
Fomulac physicians	3	..	..
Protestant missions	20	?	?
Private pharmacists	11	..	..
Private dentists	5	..	..

Trachoma in Belgium and Foreign Labor

At a recent meeting of the Société belge d'ophtalmologie, R. Hubin and J. Hubert stated that in 1930 and during the first quarter of 1931 there had been at Liége recrudescence trachoma. The majority of the trachomatous patients were foreign workmen who had recently settled in the province. The authors have observed among these workmen instances of contagious transmission of the disease. Belgian workmen have likewise been contaminated by trachomatous foreigners. The trachoma cases consisted of two distinct types, depending on which country the laborers had come from. There was the Mediterranean type, which follows a grave course and leaves significant sequels, although it is only slightly contagious, and trachoma of the Orient, of an acute type, with less grave manifestations but contagious. If this recrudescence of trachoma is general throughout Belgium, it would seem to necessitate the adoption of stricter prophylactic measures at the borders. Mr. H. Coppez, who examined the foreign workmen in a coal mine at Limburg, found 25 per cent of them trachomatous. He did not find any instances of contagion among the Belgian workmen. The school children in these localities should be examined; for trachoma is transmitted chiefly during youth.

Proposed Reforms in Ophthalmologic Studies

Mr. Weekers has published a report on the result of the referendum among the members of the Société belge d'ophtalmologie concerning the proposed reforms in ophthalmologic studies. Of the seventy-one replies received, two indicated no preference, seven were opposed and sixty-two were in favor. The Société belge d'ophtalmologie passed a resolution that proper action should be taken to protect patients against grave harm resulting from the practice of ophthalmology by specialists who are insufficiently prepared. In connection with the referendum, Mr. Weekers proposed the following resolutions: (1) that a course of instruction for specialists be officially organized in the universities, and (2) that the various universities come to some understanding in regard to the organization of such a course of instruction. *All physicians who desire to do so and* who possess the necessary qualifications should have an opportunity to specialize. The physician should be free to choose between the schools that offer such courses as he needs. Eminent specialists who are not members of any university faculty should be afforded an opportunity to collaborate in the training of candidates for specialties, should they have a taste for instruction. In accordance with rules to be agreed on with respect to titles, a specialist should, without an examination, receive a certificate to be issued by a commission composed chiefly of university specialists, and based, as the only precondition, on a short course taken at a university clinic.

In further exemplification of his ideas, the author drew up the following statement: The specialist's certificate should be provided for by law. It will give satisfaction to all. It does not affect in any manner the diploma of the doctor of medicine. There is no constraint about it. It would bring about the elimination of incompetent specialists and would prevent patients from suffering grave injuries at the hands of physicians who are inadequately prepared for the practice of a specialty.

Marriages

Dudley H. Morris to Miss Margaret Donaldson, both of New York, in Greenwich, Conn., October 17.

Vincent W. Koch, Janesville, Wis., to Miss Ardelia R. Olden of Norwood, Pa., October 30.

Eduard Falk Poser, Chicago, to Miss Marcia Louise Bruch of Evanston, Ill., November 7.

Henry Lowey, New York, to Miss Rebecca May of Wilmington, N. C., November 8.

Joseph D. Hayden, Akron, Ohio, to Miss Constance Delaney of Cleveland, September 23.

Dwight L. Jennings to Miss Isabelle Boedeker, both of St. Louis, November 16.

Deaths

Edward Tyler Edgerly ⊕ Ottumwa, Iowa; Chicago Medical College, 1889; formerly instructor of physical diagnosis, Northwestern University Medical School, Chicago; member of the American College of Physicians; served during the World War; medical director of the Sunnyslope Sanatorium; on the staffs of St. Joseph and Ottumwa hospitals; aged 67; died, November 13, in Rochester, Minn., of cholelithiasis.

Edward Milton Pemberton, Little Rock, Ark.; Maryland Medical College, Baltimore, 1902; College of Physicians and Surgeons, Baltimore, 1903; member of the Arkansas Medical Society; formerly professor of physiology and pharmacology, University of Arkansas School of Medicine; aged 50; died suddenly, November 20.

G. Wilfrid Derome, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, 1902; professor of legal medicine, University of Montreal Faculty of Medicine; for many years head of the provincial laboratories of Quebec; aged 54; died, November 24, in L'Hospital Notre-Dame.

Hall Whiteaker ⊕ Anna, Ill.; Barnes Medical College, St. Louis, 1893; served during the World War; formerly member of the state legislature; aged 62; since 1925 on the staff of the Anna State Hospital, where he died, November 24, of acute myocarditis and carcinoma of the prostate.

R. T. Jennings, Columbia, S. C.; University of the South Medical Department, Sewanee, Tenn., 1898; member of the South Carolina Medical Association; formerly city health officer; aged 55; died, November 20, in a local hospital, of injuries received in an automobile accident.

George Graham Hart ⊕ P.A.S., Lieut., U. S. Navy, retired, Beaver Falls, Pa.; Columbia University College of Physicians and Surgeons, New York, 1902; entered the Navy in 1921 and retired in 1928 for incapacity resulting from an incident of service; aged 53; died, September 20.

Ermy Corser Noble, Mayview, Pa.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1907; member of the American Psychiatric Association and the New England Society of Psychiatry; aged 58; died, October 24, in the Randolph (Vt.) Sanatorium.

Edwin Henry Newbold, Oroville, Calif.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1893; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; aged 60; died, September 13.

Levi N. Hicks, Burlington, Wis.; Rush Medical College, Chicago, 1878; Medical Department of the University of the City of New York, 1881; member of the State Medical Society of Wisconsin; aged 80; died, November 29, of cerebral hemorrhage.

Austin N. Lakin, State Line, Ind.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1905; Illinois Medical College, Chicago, 1906; aged 64; died, November 22, in the Lakeview Hospital, Danville, Ill., of gunshot wounds.

George S. Watkins, Oxford, N. C.; University College of Medicine, Richmond, Va., 1900; member of the Medical Society of the State of North Carolina; past president of the Granville County Medical Society; aged 53; died, November 18.

George Steely, Danville, Ill.; College of Physicians and Surgeons, Boston, 1905; member of the Illinois State Medical Society and the American College of Surgeons; served during the World War; aged 52; died, November 14, in St. Elizabeth's Hospital, of hypostatic pneumonia and shock following an operation for appendicitis and gallstones.

Edward John Fucik ⊕ Williams Bay, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; president of the Walworth County Medical Society; aged 50; died, December 1.

Odeen Luke, Tremonton, Utah; University of Pennsylvania School of Medicine, Philadelphia, 1921; member of the Utah State Medical Society; aged 42; died, October 9, of a skull fracture received in an automobile accident.

John Alphonso Burnett, Hamilton, Ohio; Eclectic Medical Institute, Cincinnati, 1902; member of the Ohio State Medical Association; formerly county coroner and member of the board of education; aged 52; died, November 28.

Jesse Obed Parker ⊕ Owosso, Mich.; University of Michigan Medical School, Ann Arbor, 1899; member of the Radiological Society of North America; aged 55; died, November 30, of a self inflicted bullet wound.

William H. Muelchi, Tell City, Ind.; Rush Medical College, Chicago, 1891; member of the Indiana State Medical Association; aged 73; died suddenly, November 20, of acute dilatation of the heart.

Edward Francis Donnelly, Imola, Calif.; Cooper Medical College, San Francisco, 1894; member of the California Medical Association; aged 69; died, September 20, in the Napa (Calif.) State Hospital.

William W. Smith, Clyo, Ga.; University of Georgia Medical Department, Augusta, 1885; member of the Medical Association of Georgia; aged 68; was killed, November 29, in an automobile accident.

William Henri De Clark ⊕ McGehee, Ark.; University of Arkansas School of Medicine, Little Rock, 1914; served during the World War; aged 45; died, October 30, in Little Rock, of tuberculosis.

Edward Griswold Bray ⊕ East Mauch Chunk, Pa.; Baltimore Medical College, 1904; formerly county coroner and member of the state legislature; aged 55; died, November 15, of pneumonia.

Thomas Duncan, Jr., Pageland, S. C.; University of Maryland School of Medicine, Baltimore, 1906; member of the South Carolina Medical Association; aged 47; died, November 18, of heart disease.

Edwin Augustus Kratz, Champaign, Ill.; University of Pennsylvania School of Medicine, Philadelphia, 1869; Civil War veteran; aged 87; died, November 6, of cerebral hemorrhage.

Ernest S. Wright, Conneaut, Ohio; Cleveland University of Medicine and Surgery, 1895; aged 64; died, November 11, of bronchopneumonia, cerebral hemorrhage and chronic gastritis.

John William Schafer, South Berwick, Maine; Medical School of Maine, Portland, 1897; member of the Maine Medical Association; aged 70; died, November 12, of uremia.

Elizabeth M. Cushier, Montclair, N. J.; Woman's Medical College of the New York Infirmary for Women and Children, 1872; aged 94; died, November 25, of heart disease.

James Albert Currie, Sydney, N. S., Canada; Dalhousie University Faculty of Medicine, Halifax, 1916; served during the World War; aged 42; died, September 6.

William Henry Miller, Macon, Mo.; University of Missouri School of Medicine, Columbia, 1885; St. Louis Medical College, 1889; aged 71; died, October 30.

William Roberts, Chenoa, Ill.; College of Physicians and Surgeons of Chicago, 1886; aged 87; died, November 9, in San Antonio, Texas, of mitral stenosis.

Leon William Shannon ⊕ Hiawatha, Kan.; Rush Medical College, Chicago, 1899; president of the Brown County Medical Society; aged 61; died, December 4.

Samuel Jennings Guy, Winfield, Kan.; Rush Medical College, Chicago, 1881; member of the Kansas Medical Society; aged 76; died, October 31.

Sara A. Pangburn Kime, Fort Dodge, Iowa; State University of Iowa College of Medicine, Iowa City, 1882; aged 73; died, October 30.

William Vannah Taylor, Olla, La.; Memphis (Tenn.) Medical College, 1872; health officer of La Salle Parish; aged 81; died, October 31, of sublingual carcinoma.

Benjamin L. Bryant ⊕ Detroit; Western University Faculty of Medicine, London, Ont., Canada, 1899; aged 64; was drowned, October 6.

Ezra E. Dickerman, West Burke, Vt.; University of Vermont College of Medicine, Burlington, 1892; aged 72; died, November 7.

Leslie Montgomery Kauffman ⊕ Kauffman, Pa.; Bellevue Hospital Medical College, New York, 1893; aged 62; died, in October.

Hyman Morgenbesser, New York; University and Bellevue Hospital Medical College, New York, 1905; aged 49; died, October 7.

John Comber Doolittle ⊕ Des Moines, Iowa; Rush Medical College, Chicago, 1888; aged 71; died, October 2, of pneumonia.

Emilie Brinkerhoff, San Francisco; College of Physicians and Surgeons of San Francisco, 1904; aged 53; died, September 22.

Robert E. Stone, Atlanta, Ga.; Atlanta Medical College, 1891; aged 63; died, October 17, of cardiovascular renal disease.

Abel J. Mathews, Philadelphia; Jefferson Medical College of Philadelphia, 1873; aged 79; died, September 20.

Correspondence

MEMORIAL TO BUCHHEIM

To the Editor:—Dr. G. Barkan, professor of pharmacology at the University of Dorpat, Tartu-Dorpat, Esthonia, has informed me that he is raising funds for a memorial tablet to Rudolf Buchheim, to be unveiled on the occasion of the three hundredth anniversary of the founding of the University of Dorpat. Dorpat has truly been called the cradle of modern pharmacology because there, in 1850, Buchheim founded the first university institute for the prosecution of pharmacology as an experimental science. Buchheim merits remembrance not only in his own right but because he discovered Schmiedeberg, who more than any other man turned the age-old materia medica and therapeutics of our medical schools into the modern and fundamental science of pharmacology. Those who feel disposed to make a contribution to the fund may send their check to me before the close of the year for transmission to Professor Barkan.

John J. Abel, M.D., Baltimore.
Professor of Pharmacology, Johns Hopkins
University School of Medicine.

"LES POISONS DU BACILLE TUBERCULEUX"

To the Editor:—I was surprised in reading the review given in The Journal (October 17, p. 1174) on my book "Les poisons du bacille tuberculeux et les réactions cellulaires et humorales dans la tuberculose: Esquisse d'une conception nouvelle des processus pathogéniques de la tuberculose." The reviewer wrote: "Unfortunately the author has overlooked much of the American literature since 1928 and has thereby missed an immense amount of material germane to his subject. . . . The book will be useful in France in supplementing Calmette's comprehensive work on tuberculosis but will be superfluous to the American physician who has access to numerous reviews of this subject in American publications."

If the reviewer had read my book more attentively he could have seen that a large number of references concerning American, French and foreign researches are later than 1928, and that some are even as recent as December, 1930, and January, 1931; for example, reference is made to the work of C. A. Doan, F. R. Sabin and their associates. Moreover, there is my work and that of the more recent French and foreign investigators, which often is not given due recognition in American publications.

In a subject so extended and complicated as the study of Koch bacilli and of cellular and humoral reactions in tuberculosis, it was evidently impossible for me to quote all the articles published in America and elsewhere without falling into the most complete confusion. I have deliberately chosen my references from this immense amount of material, much of which does not present any important interest for the study and progress of the work. It was my object to make, as much by my own studies as by the composition and presentation of my work, a personal contribution. There does not exist in recent literature any complete work treating of the poisons of Koch bacilli and, at the same time, cellular and humoral reactions in tuberculosis, reactions considered not only with regard to the introduction into the organism of Koch bacillus fractions, artificially separated and prepared, but also in a more general manner with bacillary infection itself; there does not exist any work giving synthetically a general study on the pathogenic processes in tuberculosis, in applying the modern theories concerning the antigens, and giving a modern definition of tuberculous allergy. All the interesting reports that have appeared on these questions are scattered in innumerable publications.

I must then believe that my book is not superfluous for American physicians, since many learned foreign and American authorities on tuberculosis, particularly Dr. W. Charles White, chairman of the Committee on Medical Research of the National Tuberculosis Association, have written to me to send a copy of my book. That will be my greatest reward.

Jean Albert-Weil, M.D., Béziers, Hérault, France.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DOSAGE OF HISTAMINE SALTS FOR TESTS OF GASTRIC ACIDITY

To the Editor:—In the *Archives of Internal Medicine* for August, in an article by Moschowitz, the gastric analysis was commented on as including "the neutral red reaction and histamine." Then in the *Archives of Internal Medicine* for September, an article by Bloomfield and Polland states that dimethyl-amino-azobenzene was used as the indicator in their work. In the pamphlet that was written by Victor C. Myers, revised in June, 1930, and sent out by the American Medical Association, the statement is made, "Although the information obtainable with the Topfer method is fairly accurate, it does not give a modern point of view." Is a difference of indicators important, and if so I should like to know the indicator that is most generally used or accepted, and the method that is considered to give the most modern point of view. I should like to know the status of the alcohol test meal at present. Is it preferable to the other test meals as a routine procedure, to be followed by an injection of histamine if at the end of thirty minutes after the alcohol meal there is no free hydrochloric acid? Is the dose of histamine standard for each person or is it still given by weight? Some assert that 0.25 mg. will provoke as much stimulation as 1 mg. Please give the accepted dosage of histamine for this use, and also the most satisfactory preparations. Please omit name.

M.D., Florida.

Answer.—The type of indicator used in gastric analysis is extremely important because the various indicators have very different ranges of acidity in which they can be used. True neutrality in water is expressed by the p_H value 7; any p_H higher than that is more alkaline than water and any p_H lower than 7 is more acid than water. Di-methyl aminobenzene solution (Töpfer's reagent) is red at p_H values of 2.9 or lower and yellow at p_H 4.0 or higher. Obviously this indicator is of value for detecting mainly relatively high acidities in the p_H range of 2.9 to 4.0. Neutral red, however, is of value only in the truly neutral range, that is, at p_H 6.8 to 8.0. In other words, very faint acidity will change the color of the neutral red solution to yellow, and will also increase the acidity. It does not distinguish between the two kinds of acidities. Di-methyl aminobenzene solution is generally applied and is useful when the acidity is measured by titration. The "modern point of view" is to determine the actual hydrogen ion concentration or p_H of the juice rather than the amount of titratable (total and free) acid. For most purposes, however, the titration method is still the more useful. There does not appear to be a distinct advantage in alcohol over the other test meals when it is used as a routine, but it appears to be fairly well established that histamine hydrochloride or phosphate injected subcutaneously frequently stimulates the secretion of hydrochloric acid when the test meal methods resulted in a diagnosis of achlorhydria. However, in true achlorhydria, the histamine does not cause the secretion of hydrochloric acid. It is of no value in cases of hyperacidity. In any case the tests should be repeated a number of times before a diagnosis is made. The greater the dose of histamine, the higher the secretion of juice and acid in normal individuals. A reasonable dosage to employ as a routine is 0.1 mg. of histamine hydrochloride to 10 Kg. of body weight. If histamine phosphate, also called ergamine acid phosphate, is used, the dosage should be increased to 0.17 mg. for each 10 Kg. of body weight. Such dosage in normal subjects produces a maximum secretion in from thirty to sixty minutes, and the secretion may extend over an hour and a half. Histamine salts may be procured from general chemical houses such as Central Scientific Company, 460 E. Ohio St., Chicago; Eimer and Amend, Third Avenue and Eighteenth Street, New York, the Eastman Kodak Company, Rochester, N. Y., or the Special Chemicals Company, Waukegan, Ill.

FLOCCULATION AND WASSERMANN TESTS—GRAM-NEGATIVE INTRACELLULAR DIPLOCOCCI

To the Editor:—What is your opinion as to the reliability of the flocculation test for syphilis as compared to the blood Wassermann test? Are there any diplococci (gram-negative and intracellular) other than gonococci; and if so, please name them. Please omit name and city.

M.D., Mississippi.

Answer.—Although there are reports in the literature of wide variations between results of Wassermann and flocculation tests, careful workers find agreement between the two classes of tests in approximately 90 to 96 per cent of cases.

Both the complement fixation and the flocculation tests are regarded as being of a physicochemical nature and not biologically specific. It is thought that both reactions are effected by the same conditions that control most colloid reactions. At present, serologists are unable to "render the factors exactly the same" in the conduct of complement fixation and flocculation tests, and for this reason serums and spinal fluids containing small amounts of syphilitic antibody may yield differing results.

The flocculation reaction is "greatly influenced by the quantitative relationship existing between the reacting substances present in the serologic system at the time the test is performed. Such relationship varies with each serum tested." Because of this, a given system may not result in a "complete and proper antigen precipitation in every case" (Levine, B. S.: *J. Lab. & Clin. Med.* **15**:985 [July] 1930).

"It would appear that the flocculation tests are more likely to yield falsely positive reactions in the hands of ordinary laboratory technicians than are the complement fixation tests, although in the hands of experts the incidence of falsely positive reactions has been remarkably low with both procedures . . . All flocculation and complement fixation tests are capable of yielding false reactions because of technical errors but the incidence of these is remarkably low in the hands of expert serologists and probably not as frequent as are the clinical errors in the diagnosis of syphilis . . . Under proper technical conditions they possess an extremely high practical specificity for syphilis in this country" (Kolmer, J. A.: *Am. J. Syph.* **15**:383 [July] 1931).

Because some serums will react at one time to a flocculation test and not to a Wassermann test, and vice versa, the two classes of tests supplement each other, and when carefully performed should show a high degree of relative agreement. It is thought that a weakly positive flocculation test is more difficult to read and to interpret than a weakly positive Wassermann reaction. A serum showing a strong positive flocculation test and a negative Wassermann reaction in a patient for diagnosis indicates the advisability of repeated tests and study of the patient.

The foregoing remarks refer more particularly to the routine test of Kahn, which is the most widely used flocculation test in this country; also to the routine Kline microscopic test and to the Hinton test. The remarks do not apply to the Kahn "presumptive test" or to the Kline "exclusion test." These two tests are too sensitive for routine use and may give false positive reactions. "There is a limit to which the delicacy of serologic procedures may be advanced without introducing the possibility of false positive reactions" (Kilduffe, R. A.: *Am. J. Clin. Path.* **1**:69 [Jan.] 1931).

The common gram-negative intracellular diplococci are the gonococcus and the meningococcus (Neisseria intracellularis or meningitidis).

According to Ford, Micrococcus catarrhalis is "occasionally intracellular in exudates" (Ford, W. W.: Textbook of Bacteriology, Philadelphia, W. B. Saunders Company, 1927, p. 380).

Ford also cites Diplococcus intracellularis-equi Johne "found by Johne in Borna's disease of horses (acute encephalitis)."

INFESTATION WITH STRONGYLOIDES INTESTINALIS

To the Editor:—I have a boy, aged 12 years, with a heavy infestation of Strongyloides stercoralis or intestinalis. I cannot find any definite reference to treatment. What would be a proper course to pursue? Please omit name.

M.D., West Virginia.

Answer.—In suggesting treatment, it is assumed that the infesting parasite is the one mentioned; i. e., Strongyloides intestinalis (stercoralis).

The following treatment should prove helpful: The patient should be given a soft, liquid, fat-free diet for three days, and each night 4 cc. (1 fluidrachm) of fluid extract of cascara sagrada in hot water. On the morning of the fourth day, the patient should remain in bed and have no breakfast. At 9 and 11 a. m. 1 Gm. (15 grains) of powdered thymol U. S. P. in 0.3 Gm. (5 grain) enteric capsules should be administered. Each hour, for five hours, the patient should take a cup of hot, weak, black, sweet coffee. At the end of that period, 0.8 Gm. (2 drachms) of magnesium sulphate in a glass of hot water should be taken, and the dose should be repeated in one hour.

The patient may then go on a light, low-fat diet for four or five days. Daily stool examination should be made for the presence of strongyloides or ova. During this week, 0.65 Gm. (10 grains) of precipitated sulphur with an equal quantity of lactose should be given in capsules three times daily.

Approximately one week after the first course of thymol, the initial procedure should be repeated (fat-free diet days, cascara, thymol, and so on).

In the average instance, such management should free the alimentary tract of its infestation. For a year, however, it is advisable to examine the stools freshly passed after the exhibition of a saline cathartic, at intervals of two months, for further evidence of the parasites. During this year, as a precautionary measure, a course of thymol should be exhibited several times.

Since the parasite usually enters the human being by way of the skin, a search should be made for patches of dermatitis on the body surface. Such areas should be well scrubbed with soft soap, U. S. P., and then kept covered with sulphur ointment, U. S. P., plus 1 per cent phenol (carbolic acid). This treatment for the dermal lesions should be kept up as long as necessary.

The region of the anus should be examined for the presence of urticarial wheals, particularly if areas of dermatitis are absent. Such wheals, according to Stitt, are due to penetration of larvae which have arisen in feces adhering to that area. Such wheals may account for reinfestation over long periods, unless they are recognized and treated. Thorough cleansing, after the fashion of caring for areas of dermatitis, and the careful application of sulphur ointment, should eliminate these foci of infestation.

Medicated colon lavages are of doubtful value, as strongyloides inhabits and causes lesions chiefly in the small intestine. Rather high eosinophilia is present when the adult female parasite is penetrating the crypts of Lieberkühn. In instances in which the question of symptoms being due to strongyloides arises, this eosinophilia has diagnostic importance.

Hookworm is frequently the offender at times when strongyloides is suspected (hookworm eggs greatly resemble those of strongyloides). Of differential value, diagnostically, is the observation that, in the stools of strongyloides infestation, eggs are rarely seen unless active purgation has been resorted to. When hookworm is the parasite present, eggs and worms commonly are present together in the stools.

TREATING GONORRHEA BY COLLOIDAL MERCURY SULPHIDE AND INTRAVENOUS HYDROCHLORIC ACID

To the Editor:—I noticed in the August issue of the *Urologic and Cutaneous Review* an article on the stimulation of leukocytosis in the treatment of gonorrhea, in which the author recommends three intravenous injections a week: one of 4 cc. of colloidal mercury sulphide-Hille and two of a 1:1,500 solution of hydrochloric acid intravenously, from 10 to 15 cc. being given at two-day intervals. Do you consider this a safe procedure or not? I had always considered any acid injection into the blood as carrying more or less risk. Would you think this treatment, without any local treatment, likely to produce a cure?

E. J. Stahl, M.D., Charleston, W. Va.

Answer.—Examination of the article quoted shows it to be one entitled "Stimulation of Leukocytosis in the Treatment of Gonorrhea." The plan of therapy was first suggested by work done by another physician in which mercurochrome-220 soluble was used intravenously as a stimulant for the white cells. This was in connection with gonorrheal infection. Proper records were not kept, however, and the observations were purely clinical. As a result of this two years of observation, the investigators then started the stimulation of phagocytes with intravenous injections of hydrochloric acid 1:1,500, and of colloidal mercury sulphide-Hille, or of milk intramuscularly. At first the hydrochloric acid was given by the intramuscular route, but later they tried it by the intravenous route, and since they felt that no harm was done, they have not hesitated to employ it by this route since then. They found that there was an increase in the leukocyte count running up to 3,500 or more within the first hour after the injection. The rationale of such a procedure is that of a foreign protein effect. Naturally, if one injects a solution of hydrochloric acid into the blood stream a certain number of red cells are going to be destroyed, with a resultant absorption of protein, an increased temperature and a certain amount of reaction like that seen in malaria. Of course, in malaria a larger number of red cells will be destroyed, and the reaction will be more severe. With this foreign protein effect there will be a mild leukocytosis, an increase of possibly 3,500, as the author states.

The query arises, Why give hydrochloric acid intravenously to get a leukocyte increase of 3,500, when the same increase can be attained by the use of various foreign proteins intramuscularly and with far less risk to the patient, and with no destruction of the red cells? For example, boiled milk intramuscularly, in doses of 5 cc., and gradually increasing, will certainly give an increased leukocyte count of probably even a larger amount. As to intravenous injection of the colloidal mercury sulphide-Hille, no rationale exists for its use in the treatment of gonorrhea, unless possibly for a mild foreign protein effect. Moreover, the Council on Pharmacy and Chemistry of the American Medical Association has recently gone on record as opposed to the use of this preparation by the intravenous route. Because of the large amounts of metallic mercury likely to be deposited in various parts of the system and not excreted, the use of this preparation intravenously is not considered a safe clinical procedure. Proof that it will cure a case of gonorrhea is certainly not available.

PREPARATION FOR SPECIALIZATION IN METABOLIC DISORDERS

To the Editor:—I desire to take up postgraduate work fitting me for specializing in metabolic diseases. I am writing to ask what books you would advise me to study (from anatomy up) previous to going out for my postgraduate work.

William Ross, M.D., La Mesa, Calif.

Answer.—Any good textbook of anatomy and physiology will serve as a beginning. Then Graham Lusk's "Science of Nutrition," as a classic background for the best in nutrition; Du Bois' "Metabolism in Health and Disease"; McLester's "Nutrition and Diet in Health and Disease," and Joslin's "Diabetes" may be read.

In addition to these, some of the many studies by McCollum, Mendel, Steenbock, Alfred Hess, McGarrison and other contributors to scientific literature would be valuable. Naunyn's original textbook on diabetes is still full of sound basic truth and will keep the student in the proper frame of mind toward the developmental aspects. Von Noorden and Isaacs have also an excellent German textbook on diabetes.

The thyroid literature is still too active to pick out the most important articles. At any rate, the few books mentioned will carry the reader into references that can occupy his time for quite a number of years.

ARTHRITIS OF CERVICAL SPINE

To the Editor:—A longshoreman, aged 59, who had never been sick before, fell down, May 15, and presented sprains and contusions of both ankles, the left more involved than the right. For two months he received baking treatments twice and thrice a week. Three times he had diathermy, each sitting lasting one hour. About this time he complained of stiff neck; the pain in the ankles increased, and he noticed fever. For a month he was in bed, being treated for acute articular rheumatism; after this he was at the hospital for two months. On his removal to his home, I was called to take care of him. The physical examination shows impossibility of movements and tenderness of the joints, the cervical vertebrae, both shoulders, and the knees, ankles and toes. Passive movements are also abolished, as any such attempt gives tremendous pain. I should appreciate an answer stating whether and how an injury to the ankles, such as described, may give rise to such a syndrome.

Salvatore Caridi, M.D., Woodcliff, N. J.

Answer.—This is evidently a case of arthritis of the cervical spine. Recommendations are rest in bed, with the head of the bed elevated, and head traction. Physical therapy, including radiant heat and gentle massage, should be of value. One can see no direct connection between the injury to the ankle and the arthritis of the cervical spine.

GUM RESECTION FOR PYORRHEA

To the Editor:—I wish to inquire whether or not excision of the gums in the so-called cure of pyorrhea is feasible and ethical. I have had quite a few patients who have had this operation done and most of them report varying results. I am of the opinion that it is impossible to sterilize the mouth, and I fail to see how cutting the gums away could effect a cure. Can you tell me anything about this method and whether or not you would advise a patient to have it done?

L. M. Harris, M.D., Columbus, Ohio.

Answer.—Gum resection for the purpose of eradicating pyorrhea pockets has been practiced since the latter part of the nineteenth century. This does not mean that every case of pocket formation along the root surfaces of teeth should be treated in this manner; however, in properly selected cases excellent results have been obtained. The criticism that it is impossible to sterilize the mouth and that such procedures are therefore not advisable is not well founded, as the same septic condition exists when any surgical intervention is attempted within the oral cavity. There is a short "correspondence" with a bibliographic reference of current literature on the subject in the November issue of the *Dental Cosmos*, page 1131.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

Alabama: Montgomery, Jan. 11. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

Arizona: Phoenix, Jan. 5-6. Sec., Dr. B. M. Berger, 12 North Central Ave., Phoenix.

California: Los Angeles, Feb. 1-4. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

Colorado: Denver, Jan. 5. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

Connecticut: *Basic Science.* New Haven, Feb. 13. Prerequisite to license examination. Address, State Board of Healing Arts, 1895 Yale Station, New Haven.

District of Columbia: *Basic Science.* Washington, Dec. 29-30. *Regular.* Washington, Jan. 11. Sec., Dr. W. C. Fowler, District Bldg., Washington.

Hawaii: Honolulu, Jan. 11-14. Sec., Dr. James A. Morgan, Room 48, Young Bldg., Honolulu.

Illinois: Chicago, Jan. 12-14. Supt., Mr. Paul B. Johnson, Springfield.

Minnesota: *Basic Science.* Minneapolis, Jan. 5-6. Sec., Dr. J. C. McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Regular.* Minneapolis, Jan. 19-21. Sec., Dr. E. J. Engberg, 524 Lowry Medical Arts Bldg., St. Paul.

Nebraska: *Basic Science.* Lincoln, Jan. 12-13. Act. Sec., Mr. P. H. Bartholomew, Lincoln.

Nevada: *Reciprocity.* Carson City, Feb. 1. Sec., Dr. Edward E. Hamer, Carson City.

New York: Albany, Buffalo, New York, Syracuse, Feb. 1-4. Chief, Mr. Herbert J. Hamilton, Room 315, State Education Bldg., Albany.

North Dakota: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, Grand Forks.

Oregon: Portland, Jan. 5-7. Sec., Dr. C. J. McCusker, 1014 Medical Dental Bldg., Portland.

Pennsylvania: Philadelphia, Jan. 5-9. Sec., Mr. Charles D. Koch, Harrisburg.

Rhode Island: Providence, Jan. 7-8. Dir., Dr. Lester A. Round, 319 State Office Bldg., Providence.

South Dakota: The St. Charles Hotel, Pierre, Jan. 19-20. Dir., Dr. H. R. Kenaston, Bonesteel.

Vermont: Burlington, Feb. 9-11. Sec., Dr. W. Scott Nay, Underhill.

Washington: *Basic Science.* Seattle, Jan. 14-15. *Regular.* Seattle, Jan. 18-19. Dir., Mr. Charles Maybury, Olympia.

Wisconsin: Madison, Jan. 12-14. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., LaCrosse.

Wyoming: Cheyenne, Feb. 1. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Pennsylvania July Examination

Mr. Charles D. Koch, secretary, Pennsylvania State Board of Medical Education and Licensure, reports the examination held at Philadelphia and Pittsburgh, July 7-11, 1931. Three hundred and seventy-nine candidates were examined, 373 of whom passed and 6 failed. The following colleges were represented:

College PASSED	Year Grad.	Number Passed
Yale University School of Medicine	(1929), (1930)	2
Georgetown University School of Medicine	(1930, 15), (1931)	16
George Washington University Medical School	(1930, 3)	3
Howard University School of Medicine	(1930, 5)	5
University of Georgia Medical Department	(1928)	1
Loyola University School of Medicine	(1931, 3)	3
Northwestern University Medical School	(1931, 2)	2
Rush Medical College	(1930), (1931)	2
University of Illinois College of Medicine	(1931)	1
Indiana University School of Medicine	(1930)	1
University of Louisville School of Medicine	(1930, 3)	3
Tulane Univ. of Louisiana School of Med	(1926), (1929)	2
Johns Hopkins University School of Medicine	(1930)	1
University of Maryland School of Medicine and College of Physicians and Surgeons	(1915), (1930, 2)	3
Harvard University Medical School	(1929), (1930, 2)	3
Tufts College Medical School	(1930, 3)	3
University of Michigan Homeopathic Medical School	(1909)	1
University of Michigan Medical School	(1923), (1930, 4)	5
St. Louis University School of Medicine	(1930, 3)	3
Washington University School of Medicine	(1926), (1930)	2
Albany Medical College	(1930)	1
Long Island College Hospital	(1896), (1928)	2
University and Bellevue Hospital Medical College	(1930, 2)	2
University of Buffalo School of Med	(1911), (1923), (1930, 2)	4
University of Rochester School of Medicine	(1929)	1
Ohio State University College of Medicine	(1930)	1
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1930, 41)	41
Jefferson Medical College of Philadelphia	(1922), (1928, 2), (1929, 19), (1930, 54)	76
Temple University School of Medicine	(1929, 5), (1930, 35)	40
University of [illegible]	(1927), (1928), (192[illegible]	72
University of [illegible]	[illegible]930, 55)	56
Woman's Medi[illegible]	[illegible]1930, 3)	4
Medical Colleg[illegible]	(1928)	2
Vanderbilt Un[illegible]	(1930)	1
University of [illegible]	(1930)	1
Medical College of [illegible]	(1930)	2
Queen's University	(1927)	1
McGill University	(1927)	1
Royal University of Naples Faculty of Medicine and Surgery	(1924), (1928)*	2
University of Edinburgh Faculty of Medicine	(1930)*	1

College FAILED	Year Grad.	Number Failed
Howard University School of Medicine	(1930)	1
Harvard University Medical School	(1929)	1
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1930, 2)	2
Temple University School of Medicine	(1930)	1
University of Pennsylvania School of Medicine	(1930)	1

Mr. Koch also reports 24 physicians licensed by reciprocity with other states and 6 physicians licensed by the endorsement of credentials from April 16 to Aug. 26, 1931. The following colleges were represented:

College LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Stanford University School of Medicine	(1925)	California
Colorado School of Medicine	(1906)	Colorado
Georgetown University School of Medicine	(1928) (1929)	Dist. Colum. New Jersey
Loyola University School of Medicine	(1925), (1930)	Illinois
University of Maryland School of Medicine and College of Physicians and Surgeons	(1927)	Maryland, New York
Tufts College Medical School	(1916)	Maine
University of Michigan Medical School	(1926, 2) (1928)	Minnesota, Michigan
University of Nebraska College of Medicine	(1928)	Illinois
Ohio State University College of Medicine	(1919)	Ohio
University of Cincinnati College of Medicine	(1929)	Ohio
Hahnemann Med. College and Hosp. of Philadelphia	(1929) (1930)	New Jersey, Delaware
Jefferson Medical College of Philadelphia	(1923) (1929)	New Jersey, Nebraska
University of Pennsylvania Department of Medicine	(1901)	Virginia
University of Pennsylvania School of Medicine	(1928, 2)	N. Carolina
University of Texas School of Medicine	(1917)	Texas
University of Wisconsin Medical School	(1927)	Michigan

College LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College	(1930)	N. B. M. Ex.
Johns Hopkins University School of Medicine	(1928)	N. B. M. Ex.
Harvard University Medical School	(1930)	N. B. M. Ex.
Jefferson Medical College of Philadelphia	(1927)	N. B. M. Ex.
University of Pennsylvania School of Medicine	(1929)	N. B. M. Ex.
Woman's Medical College of Pennsylvania	(1929)	N. B. M. Ex.

* Verification of graduation in process.

Book Notices

Selected Writings of John Hughlings Jackson. Volume I: On Epilepsy and Epileptiform Convulsions. Edited for the Guarantors of "Brain," by James Taylor, M.D., F.R.C.P., with the advice and assistance of Gordon Holmes, M.D., F.R.C.P., and F. M. R. Walshe, M.D., F.R.C.P. Cloth. Price, 25/-. Pp. 500. London: Hodder & Stoughton, Ltd., 1931.

Probably the number of neurologists who think and of those who care to know of the evolution of neurologic knowledge will be fairly indicated by the extent of the sale of this volume and of the one to follow; for no thinking neurologist can afford to be without this work and no one interested in the history of his chosen specialty will want to miss it. The papers composing the present volume concern epilepsy and epileptiform convulsions. The book contains such a mass of information that detailed review is out of the question, but no physician can read it without learning a multitude of things, besides enjoying a scientific banquet of neurologic knowledge. Any one of several chapters (on study of convulsions, on the scientific and empiric investigation of epilepsy, on convulsive seizures, on temporary paralysis after seizures) will richly repay the purchaser. In truth, one cannot be fully informed on epilepsy without study of Dr. Jackson's principal papers. For instance, the three (Harveian) lectures on the diagnosis of epilepsy are more, much more, than directions on how to detect epilepsies and to distinguish them from other conditions. They embrace a fascinating and illuminating discussion of the nature of the symptoms, a graphic description of different types, a philosophical consideration of the physiology and pathology of fits, and illustrative examples, with sage remarks based on the wide experience of an acute observer. Dr. Jackson, we fear, is known to most physicians only for the one type of epilepsy named for him, but the wide range of his meticulous observations, the clarity of his reasoning and the broad scope of his conclusions may well serve as a model and an inspiration alike to practitioner and to savant. With infinite patience and tact he constantly strove at the impossible task of teaching others to observe and to think as he did. His exposition of the logical approach and further procedure in the study of any case is not to be improved on; it is valuable equally to clinician and to research worker.

Although this volume nominally deals with epilepsy and cognate states, it abounds in unexpected nuggets of knowledge and wisdom belonging to other lodes. Jackson's remarks on insanity are decidedly illuminating. Nothing could be more satisfying and helpful than what he writes of consciousness, the will, the relation of mind to matter (brain), the relation of volition to movement, and the like. Hundreds, maybe thousands, of papers and probably whole books have been written on aphasia by authors in total ignorance of what Hughlings Jackson had said on the subject. Yet this master's dicta and surmises are priceless. A few random quotations may be added: "No one is fitted to begin the materialistic study of diseases of the brain unless he has a good knowledge of psychology." "To say that ideas or sensations produce movements is to use neither psychological nor materialistic language, but a mixture of both." "Unless a man can put the particular phenomena he himself sees under more general laws, or unless he tries to do this, he can scarcely be said to know or to be studying a thing in a very valuable sense." "Numbness of the hand before an epileptic fit, for example, coloured vision, . . . are states of consciousness, . . . as much as . . . the notion of justice is." "Without a considerable clinical knowledge of cases no one is fitted to begin the scientific comparative study of nervous diseases." "To many [observers] unfamiliarity is the same thing as unreality." This lucid thinker protested against "explanations which verbally explain everything and yet in reality explain nothing" and "a whole family of psychologico-materialistic confusions." To say that the volume reads like a romance is strictly true but not in the sense that it is "light" reading to be quickly skimmed with a pleasant titillation of one's imagination. It is meaty from cover to cover.

Practical Physiological Chemistry: A Book Designed for Use in Courses in Practical Physiological Chemistry in Schools of Medicine and of Science. By Philip B. Hawk, M.S., Ph.D., President of the Food Research Laboratories, Inc., New York City, and Olaf Bergeim, M.S., Ph.D., Associate Professor of Physiological Chemistry in the University of Illinois, College of Medicine, Chicago. Tenth (25th anniversary) edition. Cloth. Price, $6.50. Pp. 929, with 288 illustrations. Philadelphia: P. Blakiston's Son & Company, Inc., 1931.

This edition of the well known book on physiologic chemistry, which gained such recognition at the time when Philip B. Hawk was professor of physiologic chemistry at the University of Illinois, is in keeping with its predecessors in that it contains considerable material not included in the preceding edition. Noteworthy is the fact that the issuance of this book in 1931 marks the twenty-fifth anniversary since the appearance of the first volume. The subject of metabolism has been particularly enlarged, so that instead of one chapter it has been divided into chapters on respiratory metabolism and neutrality regulation; energy metabolism; protein, carbohydrate and fat metabolism, and inorganic metabolism. The recent account of the isolation of the precursor to vitamin A and the isolation in crystalline form of vitamin D make the present chapter on the vitamins somewhat behind the discoveries. The authors state that the isolation in crystalline form of vitamin D is still to be achieved, and just a few months after the issuance of the book that achievement was made. This serves to illustrate the difficulties confronting the author of a textbook on any of the basic sciences having to do with biology. The volume is well illustrated.

Der Einfluss der Ernährung auf die Konstitution des Organismus: Ergebnisse experimentell-biologischer. Forschungen. Von Prof. Dr. A. Katase, Professor an der medizinischen Akadamie zu Osaka. Paper. Price, 10 marks. Pp. 162, with 80 illustrations. Berlin: Urban & Schwarzenberg, 1931.

Katase stresses the point of view that environment and not heredity determines constitution. The chief factor in the environment which develops constitution is diet. An acid-forming diet makes for the tall slender type, while an alkali-forming diet develops the broad muscular individual. Katase obtains the experimental evidence for his conclusions by feeding rabbits either an acidic or a basic diet. Those animals fed a diet potentially acid are thin and long. Roentgen studies reveal long medullary cavities of the bones. The viscera, for example, the heart and uterus, are small. On the other hand, those rabbits fed potentially alkaline diets are broader, more muscular and have larger viscera. Though one would wish that the experiments had not been done on rabbits, since their kidneys are not capable of forming ammonia for the neutralization of acids, it is most interesting that these two types of individuals, as Katase points out, are subject to different diseases. The tall thin person is more prone to infections, especially those of childhood, while the broader type is apt to acquire the diseases of later life; e. g., arteriosclerosis, nephritis and emphysema. Perhaps the chief importance of Katase's careful work is that it adds experimental data to a subject clouded by vague hypotheses.

Lactobacillus Acidophilus: An Annotated Bibliography to 1931. By W. D. Frost, Ph.D., Dr.P.H., Professor Agricultural Bacteriology, University of Wisconsin, and Hazel Hankinson, B.A. Paper. Price, $1. Pp. 160. Milton, Wisconsin: Davis-Greene Corporation, 1931.

An annotated bibliography is presented of 5 books and 175 articles dealing with Bacillus acidophilus. Of the 175 articles, 142 were originally published in the United States, 79 in Germany, 7 in France, 4 in England, and 3 in other countries. Although a period of thirty years is covered, by far the majority of articles (76 per cent) have appeared during the last ten years. The articles are divided into several groups according to subject matter. The history of Bacillus acidophilus begins with 1900, when Moro discovered the organism. The characteristics of the organisms are discussed in twenty-five articles, but a perusal of them leads one to think that much more work must be done on this phase of the subject. The bacteriologic flora of the intestine has received considerable study; it is agreed that although the intestinal flora may be altered markedly by diet, diet alone cannot be depended on, except in rare cases, to establish an acidophilic flora. The implantation of Bacillus acidophilus in the intestine is best accomplished by massive doses of the organism administered in milk, supplemented with certain carbohydrates. The therapeutic value of acidophilus administration needs more study. Most of the articles deal with chronic constipation, this condition being much benefited, according to the published reports. There are a considerable number of articles discussing the relationship of Bacillus acidophilus with Bacillus bulgaricus and with the organism found associated with dental caries. For persons manufacturing acidophilus products, articles dealing with their preparation are grouped together. An index of articles is published by subject, by author and by chronological order.

Handbuch der pathogenen Mikroorganismen. Herausgegeben von W. Kolle, R. Kraus und P. Uhlenhuth. Lieferung 50. (Schluss des Werkes). Gesamtinhaltsübersicht aller Bände des Werkes. Gesamtsachverzeichnis. Third edition. Paper. Price, 30 marks. Pp. 342. Jena: Gustav Fischer, 1931.

The fiftieth issue of the Handbuch contains the table of contents and the index, marking the close of the great work. This indispensable aid to the reader seems to be up to the best tradition of the publishing house that has long set so high a standard for scientific work. German scholarship and industry have rendered a great service to scientific medicine in conceiving and carrying through so successfully this monumental treatise.

A Text-Book of Experimental Cytology. By J. Gray, M.A., F.R.S., Lecturer in Experimental Zoology, University of Cambridge. Cloth. Price, $7.50. Pp. 516, with 205 illustrations. New York: Macmillan Company, 1931.

A great mass of material is here marshaled by an active contributor to our knowledge of cell physiology. He critically and judicially examines the evidence for the participation of physical processes in the interactions of cells and their environments. The chemical aspects of the problems are not discussed and their importance is minimized. To what extent, he asks, can we explain the phenomona of cell division and growth, of fertilization, phagocytosis and ciliary movement in terms of surface tension, permeability, electric charge, hydrogen ion concentration and colloidal state? Incidentally, many of the significant results of the tissue culture and microdissection methods are reviewed. All this is preceded by surveys of cell physiology, colloidal systems and protoplasmic structure. Under the circumstances, mathematics must needs "perk a learned snout far beyond the cellarage of a footnote," but not often, and the general conclusions are usually stated so as to be clear to most biologists. The discussions of cell permeability and of phagocytosis have much of value to clinical investigators. There is a good presentation of the thesis that the cell movements, from pseudopod formation to muscle contraction, are fundamentally the same. The illustrations are good, the index is detailed, and the typography is above reproach.

Medicolegal

Power of Workmen's Compensation Commissioner to Punish for Contempt

(In re Hayes (N. C.), 156 S. E. 791)

On March 3, 1930, Dr. R. B. Hayes was present as a witness before the chairman of the North Carolina industrial commission. He had professionally attended the claimant, who was seeking compensation. Dr. Hayes had been sworn and had testified on both direct and cross examination. The chairman of the commission then asked Dr. Hayes whether he had an opinion as to whether or not a blow received by the claimant on October 19 would have produced a paralytic stroke on January 12. Dr. Hayes admitted that he had an opinion, but he refused to express it unless he received compensation as an expert. Section 3893 of the Consolidated Statutes provides that experts, when compelled to attend and testify as witnesses, shall be allowed such compensation and mileage as the court in its discretion may allow. The chairman of the commission, however, maintained that it was not up to him to qualify Dr. Hayes as an expert and committed him to jail for contempt of what the chairman described as "the Court." Dr. Hayes sought to obtain his release through a writ of habeas corpus, but failed. Thereupon he obtained a writ of certiorari for a review of the case by the Supreme Court of North Carolina.

Power is expressly conferred by the statute creating the North Carolina industrial commission, said the Supreme Court, for that commission or any member of it to subpena witnesses to attend and testify at a hearing before the full commission or before any member, and the statute provides that "the superior court shall, on application of the commission or any member or deputy thereof, enforce by proper proceedings the attendance and testimony of witnesses and the production and examination of books, papers and records." This provision that the legislature had made for enforcement by the superior court of the attendance and testimony of witnesses and the production and examination of books, papers and records, however, the Supreme Court thought was not adequate for a situation such as that presented in the present case. If a witness in attendance at a hearing, after having been duly sworn, can with impunity refuse to answer a question propounded to him which is pertinent to the matters in dispute between the parties, then, the Supreme Court thought, the industrial commission would be without adequate power to perform its duties. Since the legislature in providing the commission with the aid of the superior court in enforcing the attendance and testimony of witnesses did not in express terms—nor, in the opinion of the Supreme Court, by implication—deny to the commission or any member thereof the power to compel a witness in attendance at a hearing, after having been duly sworn, to testify, the court, without deciding whether the North Carolina industrial commission was or was not a court, and without citing any statutory authority or judicial precedent in support of its opinion, concluded that the commission or any of its members has the power to adjudge a witness in contempt who has deliberately and persistently refused to answer a question propounded to him and to punish such witness by fine or imprisonment. The judgment of the industrial commissioner was therefore affirmed.

The question raised by Dr. Hayes at the hearing before the chairman of the industrial commission, said the Supreme Court, when he refused to answer the question addressed to him because it was addressed to him as an expert and he had not been paid as an expert nor assured that he would be so paid, was not presented to the Supreme Court for decision and had not been decided by that court. It has been held in a few courts that a witness who has been summoned as an expert in a judicial investigation cannot be adjudged in contempt for refusing to give such testimony unless he has been compensated for his professional opinion. The better opinion, however, said the Supreme Court of North Carolina, is that an expert summoned to testify, who refuses to answer questions "without compensation other than his witness fees," is in contempt, and when an expert voluntarily submits himself to an examination as such, he can in no case refuse to answer one particular question after having without objection answered others.

Evidence: Admissibility of Physician's Office Records.—The appellee, Dennis Bisimanis, based his suit on double hernias, which he claimed were caused by his having been negligently struck by the defendants, with an automobile, Oct. 30, 1929. The case was tried, Jan. 30, 1930, and judgment given in favor of Bisimanis. Thereafter the defendants learned that some time before the date of the alleged accident a physician had found that Bisimanis was then suffering from double hernias. They then moved for a new trial, on the ground of newly discovered evidence. In connection with that motion, it was stipulated between counsel for Bisimanis and counsel for the defendants that a certain physician, if he were present and testifying on the motion, would testify that the records in his office showed that he examined one Dennis Bisimanis in his office, March 25, 1929, and found that he was suffering from double hernia, and that he advised an operation, but that the physician had no recollection of the matter independent of his office records. A rehearing was denied, and the defendants appealed to the Supreme Court of Alabama. On behalf of Bisimanis it was argued that neither the hospital [sic] records nor their contents were evidence of the facts. But, said the Supreme Court, these records, under the well settled rules of the court, were admissible on proof that the witness knew the facts when the records were made, knows that the records show the true facts, and now has no independent recollection. The cause was remanded for a new trial.—*Ohme v. Bisimanis (Ala.), 132 So. 161.*

Lymphatic Leukemia Attributed to Trauma.—The cause of lymphatic leukemia is not known to medical science. It cannot be inferred, however, from the facts that the plaintiff was well and able to work up to the time of an injury and after the injury was found to be suffering from lymphatic leukemia, that the injury caused the disease. If the disease was caused or aggravated by the injury, the plaintiff must establish that fact by a fair preponderance of evidence.—*Boyer v. Department of Labor and Industries (Wash.), 295 P. 737.*

Workmen's Compensation Acts: Compensability of Carbon Monoxide Poisoning.—The death of a workman in a mine from the inhalation of carbon monoxide in the course of his employment was, in the opinion of the court of appeals of Ohio, Carroll County, due to an "accidental injury" within the meaning of the Ohio compensation act, and not to an occupational disease.—*Industrial Commission of Ohio v. Tolson (Ohio), 174 N. E. 622.*

Privileged Communications: Waiver by Offering Testimony of Physician.—Where a party to an action puts his physician on the stand to prove that the party was incompetent to make a certain contract, he thereby waives his statutory privilege of maintaining the secrecy of communications between him and his physician. The adverse party may thereafter cross-examine the physician.—*Travelers' Building and Loan Ass'n. v. Hawkins (Ark.), 34 S. W. (2d) 474.*

Compensation of Physicians: Liability of Member of Family Who Summons Physician.—It is a general proposition supported by many authorities that he who orders a physician to come to his home to treat a member of his family becomes responsible for payment for the physician's services unless he makes it known to the physician that he disavows responsibility.—*Benton v. Stadler (Wis.), 234 N. W. 739.*

Society Proceedings

COMING MEETINGS

Annual Congress on Medical Education, Medical Licensure and Hospitals, Chicago, February 15-16. Dr. William D. Cutter, Secretary, Council on Medical Education and Hospitals, 535 North Dearborn St., Chicago.

Mid-South Post-Graduate Medical Association, Memphis, Tenn., February 9-12. Dr. A. F. Cooper, Bank of Commerce Building, Memphis, Secretary.

Society of American Bacteriologists, Baltimore, December 28-31. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Ophthalmology, St. Louis

14: 1101-1202 (Nov.) 1931

*Concerning Cyclodialysis in Simple Glaucoma. H. S. Gradle, Chicago. —p. 1101.
Bacterial Flora in Egyptian Trachoma. P. Thygeson, Denver.—p. 1104.
Cyanosis Retinae. P. C. Kronfeld, Chicago.—p. 1108.
Bilateral Hole at Macula. G. C. Kreutz, Detroit.—p. 1116.
Variations in Normal Blind Spot with Especial Reference to Formation of Diagnostic Scale: II. Color Blind Spot. H. A. Wentworth, Philadelphia.—p. 1118.
Elements of Safety in Cataract Extraction. C. S. O'Brien, Iowa City. —p. 1132.
Hyperphoria, Its Etiology, Diagnosis and Treatment. J. H. Dunnington, New York.—p. 1140.
Simplified Method of Muscle Resection for Squint. S. A. Agatston, New York.—p. 1144.
Christian's Syndrome: Case. R. S. Jason and S. V. Abraham, Chicago. —p. 1146.

Cyclodialysis in Simple Glaucoma.—Gradle believes that cyclodialysis offers practically an 80 per cent chance of success, provided the indications for the operation are adhered to. The indications for cyclodialysis in simple glaucoma are: (1) pure simple glaucoma without inflammatory reaction; (2) that type of case in which continued use of miotics just fails to maintain the integrity of the visual fields, the visual acuity and the balance of intra-ocular tension, and (3) the malignant simple glaucoma in which the peripheral defect of the visual field reaches to within ten degrees of the point of fixation. Cataract formation occurs in slightly more than 10 per cent of the cases after cyclodialysis. When proper indications exist, cyclodialysis is to be preferred to iridectomy or fistulizing operations, because of less damage to the integrity of the eye as a visual organ, less danger of immediate postoperative complications, no danger of late infection, and possibilities of repetition if unsuccessful.

American Journal of Physical Therapy, Chicago

8: 205-232 (Nov.) 1931

Galvanism: Theoretical and Practical. J. E. G. Waddington, Detroit. —p. 211.
Bronchial Asthma. J. W. Torbett, Marlin, Texas.—p. 214.
Hydrotherapy in Syphilis. L. Thompson, Hot Springs, Ark.—p. 216.

Archives of Pathology, Chicago

12: 333-519 (Sept.) 1931

Assimilation of Atlas and Compression of Medulla. I. Bézi, Budapest, Hungary, and Rochester, N. Y.—p. 333.
*Experimental Rickets and Calcification of Dentin. H. Becks and W. B. Ryder, San Francisco.—p. 358.
Isolated Giant Growth of Branch of Pulmonary Artery Associated with Congenital Bronchiectasis: Case. S. R. Rosenthal, Chicago.—p. 387.
*Generalized Actinomycosis (Pyemic Form): Case. P. F. Shapiro, Chicago.—p. 397.
*Bartonella Anemia in Nonsplenectomized Rats. L. Rosenthal and B. L. Zohman, Brooklyn.—p. 405.
Normal Renal Glomerulus of Man: Histologic Consideration. D. L. Wilbur, Rochester, Minn.—p. 413.
Effect of Injection of Trypan Blue on Rate of Sedimentation of Erythrocytes in Inflammation. G. H. Klinck, Jr., Philadelphia.—p. 429.

Rickets and Dentin Calcification.—According to Becks and Ryder, a rachitic diet (McCollum's 3143) produces marked pathologic changes in the dentin if the diet is maintained during the development of the teeth. These changes increase in extent and severity as the period of the diet is prolonged. The changes induced are analogous to those produced in the long bones under the same dietary conditions. In the early stages the changes consist of a diminution in the amount of calcium salts deposited, even after such a short period as seven days; a change in the type of calcification, from a homogeneous to an irregular, globular type, and the continued formation of dentinoid matrix, which appears to widen as a result of the slowing down of the calcification. Atrophy of the odontoblasts appears after about fourteen days, increasing in severity as the feeding experiment progresses. This is found first in the most recently formed cells, spreading slowly to the older odontoblasts. Since the diet is deficient only in vitamin D, it is believed that this primary atrophy of odontoblasts develops when all the cellular vitamin D is utilized. Because of the similarity in function of odontoblasts and osteoblasts, it would seem that the changes in bones in rickets are probably due to a primary involvement of the osteoblasts. Certain marked changes result from the odontoblastic atrophy: complete arrest of calcification in contrast with continued deposition of lime salts by adjacent vital odontoblasts; in cases in which single odontoblasts degenerate, no cementing substance is formed, and capillaries become included by the continued formation of matrix by the adjacent vital cells. On the basis of the data presented, it is believed that the odontoblasts are chiefly responsible for the formation of dentin. They are required to produce the cementing substance which holds von Korff's fibers in place. Their presence is necessary to form Tomes' processes and so give nutrition and calcifying material to the dentin, and furthermore in order that calcium salts may be deposited and the matrix calcified.

Actinomycosis.—Shapiro reports a case of generalized, florid, pyemic actinomycosis, which demonstrates the predilection of actinomycetes for hematogenous spread. In such cases the lymphatic system is spared. There is a marked tendency toward the development of local actinomycotic thrombophlebitis, and when generalization does occur, it does so practically only by way of the blood stream.

Bartonella Anemia in Rats.—Rosenthal and Zohman describe experiments in which they found that blockade of the reticulo-endothelial system, combined with a superimposed bartonella infection, produces the blood picture of anemia and a severe bartonella infection. In trypanosome-infected animals, blockade without superimposed infection or superimposed infection without blockade produces the same results. The cellular changes in the spleen of the blockaded, infected rat consist, essentially, of hyperplasia of the pulp with proliferation of the follicles. In the liver and bone marrow, foci of necrosis are present, irregularly scattered and of different size. In rats that previously have been splenectomized, have developed a bartonella infection and anemia, and have recovered, blockade with india ink or injection of trypanosome-infected blood causes a recurrence of the disease.

Iowa State Medical Society Journal, Des Moines

21: 533-590 (Oct.) 1931

Surgical Clinic: Gallbladder and Duodenal Ulcer. H. L. Beye, Iowa City.—p. 533.
Preventive Medicine as Related to Medical Practitioner. D. C. Steelsmith, Des Moines.—p. 539.
Symposium on Fractures: Fractures of Foot and Ankle. C. O. Epley, Spirit Lake.—p. 540.
Id.: Fractures into Knee Joint. W. E. Wolcott, Des Moines.—p. 543.
Id.: Fractures of Hip. F. L. Knowles, Fort Dodge.—p. 547.
Id.: Fractures of Hand and Wrist. J. A. Cahill, Volga City.—p. 549.
Id.: Fractures of Shoulder. C. A. Katherman, Sioux City.—p. 550.
Id.: Head Injuries, Differential Diagnosis and Treatment. C. W. Hopkins, Chicago.—p. 552.
Postmortem Examinations: Their Importance and Necessity. F. P. McNamara, Dubuque.—p. 556.
Survey of Law Concerning Dead Human Bodies. D. M. Blum, Des Moines.—p. 563.

21: 591-656 (Nov.) 1931

*Psychopathic Personality. A. H. Woods, Iowa City.—p. 591.
Spinal Anesthesia in General Surgery. A. D. Neubert, Fort Dodge.—p. 597.
Postoperative Atelectasis. T. A. Burcham and H. W. Dahl, Des Moines. —p. 601.
Some Factors That Prolong Labor. J. F. Taylor, Sioux City.—p. 606.
Handicapped Children's Section of White House Conference. Mae Habenicht, Des Moines.—p. 608.
Complications of Peptic Ulcer. J. C. Hill, Newton.—p. 615.
Study of Incidence and Symptoms of Ectopic Pregnancy. M. C. Hennessy, Council Bluffs.—p. 623.

Psychopathic Personality.—According to Woods, persistently futile or annoying behavior is in many cases understandable. After all cases due to insanity, intellectual defectiveness and ordinary selfishness or weakness are removed, there is, however, a remainder of cases in which one cannot fathom the motives. These persons are called psychopaths and their constitutional makeup is called psychopathic personality. Common to all these cases of misbehavior are the following characteristics: persistence, fixity in the constitution of the person, disadvantageousness, incorrigibility, short-sightedness, basally defective affect, and a tendency to slip into psychosis or psychoneurosis. Psychopaths are abnormal and usually require institutional control. If no psychotic or psychoneurotic process is present, they should be disciplined for law breaking. If wise discipline has proved ineffectual after two or three applications, the offending psychopath should be permanently restrained in a proper state institution.

Kentucky Medical Journal, Bowling Green

29: 575-616 (Nov.) 1931

Unusually Extensive Fecal Fistula. A. O. Taylor, Maysville.—p. 589.
•Torsion of Normal Ovary and Tube with Rupture of Ovary: Review of All Literature to Date. J. D. Northcutt and C. Baron, Covington.—p. 590.
Spontaneous Expulsion of Uterine Fibroid. K. W. Brumback, Cynthiana.—p. 592.
An Atypical Case of Ruptured Subphrenic Abscess. E. F. Sheppard, Jenkins.—p. 593.
Poisoning by Wild Parsnip (Hemlock). L. L. Terrell, Corbin.—p. 595.
Diagnosis and Treatment of Latent Syphilis. C. B. Willmott, Louisville.—p. 596.
Secondary Anemias of Childhood. J. W. Bruce, Louisville.—p. 599.
Germs. J. Martin, Cynthiana.—p. 601.
Are Doctors Responsible for High Cost of Illness? W. F. Peebles, Clinton.—p. 602.
Pathogenesis of Exophthalmic Goiter. V. E. Simpson, Louisville.—p. 603.
Cervical Lacerations and Infections. W. O. Johnson, Louisville.—p. 607.
Puerperal Eclampsia and Conservative Treatment. D. L. Jones, Fulton.—p. 610.
Health Units, Group Practice and Community Hospitals as Remedy for Scarcity of Physicians in Rural Districts. R. C. Burrow, Cunningham.—p. 612.

Torsion of Normal Ovary and Tube with Rupture of Ovary.—Northcutt and Baron report a case of torsion of the normal ovary and tube with rupture of the ovary. They believe that this is the fourteenth case on record in which the ovary was involved and that it is the first case on record in which rupture followed the torsion. In the differential diagnosis of abdominal pain in young girls, torsion of the ovary must be considered, particularly when associated with pain on straining at stool. Anatomic anomalies must be considered a strong factor in the predisposing causes to torsion of the normal ovary and fallopian tube.

Maine Medical Journal, Portland

22: 191-214 (Oct.) 1931

Diagnostic Laboratory and Its Activities. A. G. Long, Augusta.—p. 196.
School Sickness in Lower Grades of School. Clair S. Bauman, Waterville.—p. 197.
Report of Poliomyelitis Epidemic of 1930 in Maine. M. Warren, Portland.—p. 201.
Id.· Clinical Aspects. T. A. Foster and L. H. Bishop, Portland.—p. 202.
Control of Poliomyelitis. S. D. Kramer, Boston.—p. 205.
Epidemiology of Poliomyelitis. C. F. Kendall, Augusta.—p. 209.

Med. Bull. of Vet. Adm., Washington, D. C.

7: 915-1004 (Oct.) 1931

Buffered Diluent as Preservative for Diphtheria Toxin for Schick Test. C. P. Brown, G. M. Melvin and I. G. Shirkey.—p. 915.
•Roentgen Diagnosis in Intravenous Pyelography. J. J. Peters.—p. 918.
Observations in Ten Cases of Thrombo-Angiitis Obliterans. A. C. Crank.—p. 922.
Epidural Anesthesia. H. E. Bundy.—p. 924.
Blood Transfusion. P. F. Brown.—p. 926.
Postoperative Medical Treatment of Gastro-Enterostomy. K. Reeves.—p. 928.
Involutional Melancholia. H. P. Morgan.—p. 933.
Psychosis with Pellagra. U. G. Iles.—p. 937.
•Tuberculous Meningitis. W. O. Hearn.—p. 940.
Prognosis in Pulmonary Tuberculosis. F. M. Gaines.—p. 945.
Treatment Problems of Induced Malaria. V. B. Williams.—p. 949.
Changes of Type Occurring in Dementia Praecox. E. M. Levy.—p. 954.
Dementia Praecox: Its Relative Prevalence and Classification of Its Types. C. H. Burdick.—p. 958.
Practicability of Toothbrush Cabinets. D. S. Bartlett.—p. 961.

Roentgen Diagnosis in Intravenous Pyelography.—According to Peters, intravenous pyelography offers a simple, painless method of examining the kidney pelvis, ureters and bladder, roentgenographically producing urograms of diagnostic quality. While this method is reasonably innocuous, its indiscriminate use is not to be encouraged. With more experience in its use and skill in the interpretation of the observations, the diagnostic criteria will be as definite as those of cystoscopic pyelography. Intravenous pyelography does not replace the older method. Its use in demonstrating function in surgical conditions of the kidney is of great value, both alone and with ureteral catheterization. The uses of this method alone and in combination with retrograde catheterization will increase with more experience. Iopax serves a dual purpose. The time of appearance of the opaque medium on the film, together with physical and chemical tests of the urine, gives a fair estimate of kidney function. This method broadens the field of pyelography to the following, heretofore denied this important diagnostic aid: (*a*) infants and children, (*b*) debilitated adults, (*c*) urethral stricture cases, (*d*) cases with deformities, and (*e*) malignant cases and others unsuited for retrograde catheterization. It is the method of choice in the absence of a competent urologist.

Tuberculous Meningitis.—Hearn emphasizes the fact that severe headache in a person with tuberculosis which is not relieved by ordinary methods, and especially if accompanied by high temperature and elevation of the pulse, should be regarded as suggestive of tuberculous meningitis. No improvement can be hoped for, and death usually occurs within four to six weeks from tuberculous meningitis, but spinal puncture done every forty-eight hours will help make the patient more comfortable.

Northwest Medicine, Seattle

30: 437-482 (Oct.) 1931

•Chronic Pyuria in Children. M. F. Campbell, New York.—p. 437.
New Method of Employing Skeletal Traction. R. Anderson, Seattle.—p. 444.
Craniocerebral Trauma Implicating Superior Longitudinal Sinus: Four Case Reports. D. G. Dickerson, Seattle.—p. 449.
Diagnosis and Management of Craniocerebral Injuries. W. A. Bunten, Cheyenne, Wyo.—p. 453.
Course of Gonorrhea as Recorded by Photomicrographs of Discharge. W. R. Jones, Seattle.—p. 460.
Black Tongue: Case Reports. T. G. Mitchell, Seattle.—p. 464.
Free Choice of Physicians. A. H. Peacock, Seattle.—p. 467.

Chronic Pyuria in Children.—Campbell points out that, when chronic pyuria exists in a child, the diagnosis of chronic pyelitis is usually made and the child is inadequately treated for months or years. Because the renal lesion is primarily a suppurative interstitial nephritis and the pelvic changes are of lesser importance, he believes the pathologically correct designation pyelonephritis should supplant the clinically convenient though inadequate term pyelitis. These patients should be given the benefit of an intensive course of medical therapy, but if, after one month, they remain pyuric, a complete urologic examination should be carried out. From a large clinical experience in this field it is found that infants and children may suffer with almost every one of the various types of diseases of the urinary tract which in the past one has been accustomed to consider as adult lesions. The treatment of these diseases in juveniles differs in no wise from that in adults. It cannot too urgently be stressed that these young patients are entitled to the same advantages of modern urologic methods that adults demand, especially since in juveniles the morbidity risk entailed by examination is less than half that in adults. Only by this method can the correct diagnosis be made and only by radical surgical treatment will many of these children be permitted to enjoy adult life.

Public Health Reports, Washington, D. C.

46: 2663-2707 (Nov. 6) 1931

•Pellagra-Preventive Value of Canned Spinach, Canned Turnip Greens, Mature Onions, and Canned Green Beans. G. A. Wheeler.—p. 2663.
Technic for Adjustment of p_H of Tissue Cultures Planted in Carrel Flasks. W. R. Earle.—p. 2668.

Pellagra-Preventive.—Wheeler tested canned spinach, canned turnip greens, mature onions and canned green beans for their relative pellagra-preventive potency. He found that canned spinach supplies the pellagra-preventive vitamin but cannot be regarded as especially rich in it. It is, however, considered an important contributory source of this factor. Canned turnip greens supply the pellagra-preventive vitamin and, at least in liberal quantity, adequately supplement an otherwise pellagra-producing diet. This substance meets many of the requirements of a practical and effective dietary supplement in the pellagrous sections. The mature onion is a very poor source of the pellagra-preventive vitamin. Canned green beans are, relatively, a poor source of the pellagra-preventive vitamin.

Texas State Journal of Medicine, Fort Worth

27: 481-552 (Nov.) 1931

Diaphragmatic Hernia: Cause of Esophageal Obstruction. L. A. Fortier and T. T. Gately, New Orleans.—p. 488.
Diseased Fundus and Its Relation to General Condition. H. L. Hilgartner and H. L. Hilgartner, Jr., Austin.—p. 490.
*Nondiphtheritic Laryngotracheobronchitis. C. P. Schenck, Fort Worth.—p. 493.
Maxillary Sinusitis. J. H. Carter, Beaumont.—p. 497.
Preventive Psychiatry. J. M. Cunningham, Houston.—p. 501.
Masturbation: Its Significance, Cause and Treatment. E. M. Perry, Dallas.—p. 505.
Needs for Psychiatric Education. T. H. Harris and A. Hauser, Galveston.—p. 508.
Carbon Monoxide Poisoning: Case. D. Neighbors and C. C. Garrett, Fort Worth.—p. 513.
Bronchopneumonia. C. B. Sanders, Galveston.—p. 516.
Acute and Subacute Yellow Atrophy of Liver: Clinical and Pathologic Study. O. T. Woods, Dallas.—p. 518.
Emotional and Psychic Factors in Exophthalmic Goiter and Diabetes. C. T. Stone, Galveston.—p. 521.
Consideration of Some Essential Features of Management of Toxic Goiter. J. G. Burns, Cuero.—p. 523.
Surgical Management of Exophthalmic Goiter. G. D. Mahon, Jr., Dallas.—p. 526.
Nonspecific Protein Therapy in Gynecology. H. W. Yates and D. Davidow, Detroit.—p. 529.

Laryngotracheobronchitis.—Schenck calls attention to the fact that foreign bodies, especially those of vegetal origin, may cause laryngotracheobronchitis. Acute laryngotracheobronchitis was of nondiphtheritic origin in about 13.5 per cent of 810 suspected cases. A mortality of practically 24 per cent is shown in a large number of reported cases. Opinion is divided between the use of intubation and of tracheotomy, with a majority favoring the latter method of relieving stenosis. The author believes that suction or bronchoscopic removal of secretion or of dried crusts causing laryngeal stenosis will save many lives.

Wisconsin Medical Journal, Madison

30: 790-879 (Oct.) 1931

Brief Outline of Public Health Development in Wisconsin. C. A. Harper, Madison.—p. 803.
Social Medicine. O. A. Fiedler, Sheboygan.—p. 807.
Infantile Paralysis. J. E. Gonce, Jr., Madison.—p. 813.
Multiple Sarcoma of Lungs, Secondary to Teratoma of Testis: Case. S. D. Greenwood, Neenah.—p. 818.

30: 882-955 (Nov.) 1931

*Congenital Hemolytic Jaundice. H. M. Warfield, Milwaukee.—p. 895.
Goiter Heart. H. E. Marsh, Madison.—p. 900.
Cervicitis. R. H. Ludden, Viroqua.—p. 903.
Bilateral Congenital Hydronephrosis and Hydro-Ureteral Angularity: With Report of Two Cases Occurring in Sisters. E. W. Exley, Green Bay.—p. 908.
Lipiodol an Aid in Diagnosis and Guide in Treatment of Antrum Disease. N. Schneck, Manitowoc.—p. 914.
Pneumonia Complicated by Empyema During Pregnancy: Case. E. S. Knox, Green Bay.—p. 919.

Congenital Hemolytic Jaundice.—Warfield believes that the differential diagnosis of congenital hemolytic jaundice is not difficult if one keeps the disease in mind. From pernicious anemia with jaundice, the diagnosis should not be difficult. Increased fragility of the red cells is never present in pernicious anemia, and the spleen is not apt to be enlarged. Blood smears may be something alike in the two diseases, but no one with any experience should confuse the two blood smear pictures. From so-called Banti's disease, cirrhosis of the liver with splenomegaly and anemia of a chlorotic type, the diagnosis may be a little confusing. In such cases the skin is not infrequently slightly lemon tinged, and acute attacks of pain and fever may occur. Here again the increased fragility of the red cells is diagnostic. The family history will also be helpful in diagnosis. In the South and in the tropics, chronic malaria may enter the differential diagnosis. If no parasites can be found, again the increased fragility of the cells will establish the diagnosis. In all other diseases simulating congenital hemolytic jaundice, not one has this peculiarity of the red cells. The test is not difficult to perform and should be done whenever there is a suspicion of the disease in question.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

15: 609-672 (Nov.) 1931

*Contribution to Pathology of Papilledema. E. Wolff and F. Davies.—p. 609.
Micro-Organism of Indian Superficial Punctate Keratitis. H. Herbert.—p. 633.
Ocular Plumbism in Children. J. L. Gibson.—p. 637.
End-Results in Monocular Esotropia. L. C. Peter.—p. 642.
Coloboma Lentis with Abnormal Ciliary Body. T. H. Butler.—p. 648.
Conservation of Eyedrops. K. Miklós.—p. 649.

Pathology of Papilledema.—Wolff and Davies describe experiments on animals in which they demonstrated that nondiffusible dyes injected into the cranial subarachnoid space at pressures compatible with life do not enter the optic nerve. The claims of previous investigators to have produced papilledema by the injection of fluids into the cranial subarachnoid space at pressures compatible with life are not upheld by the authors' study. Anatomic observations were made on the normal structure of the optic nerve head in the dog and in man. Structural reasons are advanced for the special site of commencement of papilledema in man and for the extent of distribution of the edematous fluid associated with papilledema.

Indian Medical Gazette, Calcutta

66: 543-602 (Oct.) 1931

Seasonal Variations of Cholera Bacteriophage in Natural Waters and Man, in Calcutta During Year 1930. C. L. Pasricha, A J de Monte and S. K. Gupta.—p. 543.
Seasonal Variations of Dysentery Bacteriophages in Natural Waters and Man, in Calcutta During Year 1930. C. L. Pasricha, A. J. de Monte and S. K. Gupta.—p. 546.
Seasonal Variations of Typhoid Bacteriophage in Natural Waters and Man, in Calcutta During Year 1930. C. L. Pasricha, A. J. de Monte and S. K. Gupta.—p. 549.
Simple Method for Filling Ampules. C. L. Pasricha, A. J. de Monte and S. K. Gupta.—p. 551.
Note on Production of Cyanogen Radical in Peptone Water Cultures of Cholera Vibrio. C. L. Pasricha and S. M. Das Gupta.—p. 551.
Roentgenologic Diagnosis of Tuberculous Disease of Lung, in Adults and Children. G. Galstaun.—p. 552.
Presence of Filarial Worm in Tumor Removed from Left Side of Nose of Child. A. J. Noronha.—p. 556.
Syphilitic Diseases of Eye. E. W. O'G. Kirwan.—p. 560
Investigation of Short Fevers at Trimulgherry, 1931. C. D. Torpy.—p. 564.
Icterus Index: Its Significance in Surgery of Biliary Tract. A. C. Ghose.—p. 567.

Journal of Laryngology & Otology, Edinburgh

46: 729-796 (Nov.) 1931

*Sinusitis and Its Radiologic Demonstration. H. K. G. Hodgson.—p. 729.
Skiagrams in Diseases of Maxillary Sinus, Their Surgical and Pathologic Significance. R. G. Brown.—p. 736.

Sinusitis and Its Roentgenologic Demonstration.—Hodgson emphasizes the fact that when roentgenograms of the accessory nasal sinuses are taken the positions used must be absolutely standard for all patients; that is, in all cases the positions must be exactly the same. It is only by such a technic that the normal can accurately be comprehended and the abnormal detected with the greatest possible exactitude. Roentgenograms must be taken in the erect posture in order to determine the presence or absence of fluid. Unless this is done, many cases of infection of the anterior group of sinuses will be overlooked in the roentgen examination. Six roentgenograms must be taken to include all the accessory nasal sinuses, and the roentgenograms must be technically perfect.

Journal of State Medicine, London

39: 621-682 (Nov.) 1931

Mycologic Methods in Identification of Various Sugars and Other Carbon Compounds. A. Castellani.—p. 621.
*Vaccination Against Diphtheria. W. Kolle.—p. 640.
Place of Fish in Dietary of Adults and Children. D. H. Geffen.—p. 656.
Social Welfare for Diabetics. F. W. Lapp.—p. 660.
Alkaline and Acid Foods. M. P. Weiss.—p. 666.

Vaccination Against Diphtheria.—Kolle believes that in combating epidemic diphtheria and in reducing further the morbidity, mortality and lethality of this disease, active immunization with suitable antigens (vaccines) is not only hopeful but recommendable. He recommends for immunization the use of antigens, which are tested for sterility and innocuousness; that is, for nontoxicity with the lowest irritating power. The diphtheria toxins, freed from toxicity by the addition of solution of formaldehyde, so-called formol toxoids or anatoxin are the most recommendable for active immunization of children. For testing of these vaccines and others, it is necessary to determine a standard vaccine to be used for comparison, by testing each batch. Exact definite regulations are needed for the methods of testing. In order to obtain immunity of sufficient strength and duration, one must make three injections of the vaccine, increasing the doses. Intramuscular injections of the formol toxoids must be made. Investigation must be made to determine whether the methods of testing the immunizing power of the vaccines in large series of animals by testing them within a certain time after immunization with definite quantities of toxin can be replaced by other direct or indirect methods (flocculation, determination of the binding power, and so on). The immunization can be carried out during an epidemic. Animal experiments show that a negative phase after the injection of immunizing vaccine does not exist. Immediately after injection, one can find a resistance against infection with living bacilli or its toxins.

Journal of Tropical Medicine & Hygiene, London

34: *337-352* (Oct. 15) 1931

Year's Operative Work in Nairobi, Kenya Colony. N. P. Jewell.—p. 337.
Prognosis of Schistosomiasis Hematobium. R. Girges.—p. 342.
Some Aspects of Colon Group of Organisms, with Especial Reference to Water Supplies of Trinidad. J. L. Pawan.—p. 345.

China Medical Journal, Shanghai

45: *923-1036* (Oct.) 1931

Hydatidiform Mole and Chorio-Epithelioma. J. P. Maxwell.—p. 923.
*Intractable Incontinence of Urine: Case. D. M. Gibson.—p. 957.
Tuberculosis of Stomach: Two Cases. P. B. Price.—p. 963.
Experimental Researches on Etiology of Scarlet Fever: I. Is Hemolytic Streptococcus Always Detected in Scarlet Fever Patient or is Scarlet Fever Always Associated with Hemolytic Streptococcus? T. Toyoda, J. Moriwaki and Y. Futagi.—p. 969.
Id. II. Are All Strains of Scarlatinal Streptococci Capable of Producing Dick Toxin? T. Toyoda, J. Moriwaki and Y. Futagi.—p. 971.
Id.: III. Identification of Scarlet Fever Rash with Experimental Rash Caused by Toxin of Scarlatinal Streptococci. T. Toyoda, J. Moriwaki and Y. Futagi.—p. 972.
After Five Years. H G. Wyatt.—p. 976.

Intractable Incontinence of Urine.—Gibson reports a case of intractable incontinence ensuing on traumatic stricture of the urethra and complicated by grave renal sepsis. Mechanical relief of the incontinence was effected by transplantation of the ureters into the pelvic colon. The pathologic condition of pyonephrosis in the right kidney, however, precluded any hope of a successful cure. A marked feature was the progressive anorexia of the most incorrigible type. Emaciation thus became extreme. Doubt is cast on the value of nephrostomy as a surgical procedure, the resulting urinary fistula tending to prove intractable. The suggested cure of such a fistula by nephrectomy was out of the question in the author's case. The procedure of transplanting the ureters into the intestine is of great value in such cases as the one described, more especially if carried out before renal sepsis has supervened. It is a sound surgical procedure not fraught with any serious risk, provided due attention is paid to details of technic.

Presse Médicale, Paris

39: *1557-1572* (Oct. 24) 1931

*Volhard's Tests of Renal Function. Pasteur Vallery-Radot and A. Lafitte. —p. 1557.

Volhard's Tests of Renal Function. — Pasteur Vallery-Radot and Lafitte stress the value of specific gravity in the study of urinary function. Volhard's tests are (1) the dilution test and (2) the concentration test. The dilution test is performed as follows: The subject in a fasting condition, having urinated, drinks 1,500 cc. of water or very weak tea between 7:30 and 8:30 a. m. He remains in bed and urinates every half hour from 8 to 12. It is important to consider, on the one hand, the quantity of urine eliminated and the manner of elimination and, on the other hand, the specific gravity of the specimens of urine. A subject with normal kidney function will eliminate in the four hours a quantity of urine equal to and sometimes larger than the quantity of water ingested; during the first two hours, more than half of the total is voided; the different fractions of urine are not equa quantity; and finally the specific gravity should be low (1.000 to 1.003) but not higher than 1.003, and the total u evacuated should be at least 1,300 cc. The concentration is performed as follows: The subject two days before the gets an ordinary diet and drinks from 1,500 to 2,000 cc liquid. The day of the test he remains in bed and ing during a period of twenty-four hours, bread, meat, eggs, pa rice or potatoes, normally salted. Green vegetables and f are excluded because of the water which they contain. drinks altogether from 400 to 500 cc. of water in small tionated quantities. He should urinate every two to four ho Normally the total volume of urine varies the day of the from 300 to 750 cc. The specific gravity of the urine is im tant—a portion should have a specific gravity of at least (a smaller figure denotes that the kidneys concentrate poo The two tests demonstrate by dilution the function of glomeruli, and by concentration the function of the tub The tests of Volhard are compared with other tests in cur usage, such as blood urea, Ambard's constant, and the phe sulphonphthalein test. The authors conclude that there is *parallelism between Volhard's tests and other tests.* In c test the renal functions examined are distinctly different. number of described instances the other tests would not de nate the difficulty that was clearly demonstrated by Volha tests. The tests cannot be interchanged.

Revue Sud-Am. de Méd. et de Chir., Paris

2: 881-976 (Sept.) 1931

*Suprarenals in Regulation of Arterial Tension. A. Biasotti.—p. 8
Amino-Acid Content of Blood in Pulmonary Tuberculosis. P. M and E. A. Molinelli.—p. 900.
Possibility of Muscular Atrophy of Cerebral Origin. A. Austreg and D. do Couto.—p. 905.
Kielland's Operation in Genital Prolapse. G. V. de Azevedo.—p.
Curative Phlebosclerosis of Varicose Veins. J. Alfredo.—p.
Retention of Urine Caused by Fibromatous Gravid Uterus in version and Retroflexion. L. Razetti.—p. 933.

Suprarenals in Regulation of Arterial Tension.—B sotti describes experiments which led him to conclude t unilateral or bilateral abdominal sympathetic denervation as ciated with section of the large or small splanchnic nerve d not cause any change in the arterial tension. Extirpation one suprarenal generally does not modify the arterial tensi Extirpation of both suprarenals in an animal is followed by progressive fall in the arterial tension and death in from fo to sixty hours. Dogs deprived of one suprarenal and the med lary substance of the other present a hypotension of from to 4 cm. of mercury, the tension remounting progressiv until the initial level is attained (from twenty to thirty da after the operation). When demedullized animals (tension normal level) were bled to 1.5 per cent of their body weig there was a more marked and more lasting hypotension th when normal animals were bled. Ablation of the medulla substance of the suprarenals caused an asthenia and a hyp tension of the vasomotor system with diminution of the norn functional capacity. At the beginning of the abdominal sy pathetic denervation and suprarenal demedullization the arter tension fell for some time but later regained its initial lev

Minerva Medica, Turin

2: 485-520 (Oct. 13) 1931

*Diagnostic Value and Pathogenesis of a New Dorsal Pain Point. Campanacci.—p. 485.
Researches on Bacterial Flora of Cystitis Following Nephrectomy Renal Tuberculosis. C. A. Velo.—p. 490.
Allergic Diseases. A. Cionini.—p. 493.

Diagnostic Value and Pathogenesis of a New Dors Pain Point.—Campanacci recalls the subjective and the objec tive pain symptoms that are encountered in appendicitis, reviev ing particularly, on the one hand, the abnormal localizatio of subjective pain, and, on the other hand, the painful poin (direct and indirect) that are objectively observable. He th describes a new (dorsal) painful spot, to which he first calle attention in 1927, occurring in cases of appendicitis. He tel how to locate it, how frequently it is manifested, its clinic diagnostic value and its probable pathogenesis.

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